The Builder.

VOL. LXVIII. No. 2726. MAY 4, 1895.

ILLUSTRATIONS.

Design for the Apse Windows of Gracechurch, Utica.—By Mr. Henry Holiday ..... *Extra-Large Ink-Photo.*
New Chapel, St. Peter's College, Radley.—Mr. T. G. Jackson, A.R.A., Architect ..... *Double-Page Ink-Photo.*
Abbeys of Great Britain—XII., Bolton.—Drawn by Mr. J. A. Slater ..... *Double-Page Photo-Litho.*
Plan of Bolton Abbey ..... *Double-Page Photo-Litho.*

CONTENTS.

Architecture at the Royal Academy 323
Notes 325
The New Gallery Exhibition 326
Letter from Paris 327
The Architectural Association 328
Painting and its Relation to Architecture 330
The Architectural Association Spring Visits 331
Archæological Societies 331
Apse Windows, Grace Church, Utica 332
Radley College Chapel 332
Bolton Abbey 332
Competitions 333
The Royal Society Conversazione 333
Incorporated Association of Municipal and County Engineers 333
The London County Council 335
The Surveyors' Institution 335
Architectural Societies 336
Engineering Societies 336
"Rational Building" 336
Thin Partitions 336
Appointment of Clerks of Works in Bristol 336
The Recent Sale of Blocks 336
Student's Column: Bricks and Terra-cotta.—XVIII. 337
General Building News 338
Sanitary and Engineering News 338
Foreign and Colonial 339
Miscellaneous 339
Legal 339
Capital and Labour 340
Meetings 341
Some Recent Sales of Property 341
Prices Current of Materials 341
Tenders 341

Architecture at the Royal Academy.

THE Architectural Room this year contains two models of buildings, in addition to the usual drawings. What may not be hoped from such an innovation? It is true that if this new movement is carried much further, and other architects besides the two bold innovators take encouragement to enter on the same path, the small room devoted to the representation of architecture will soon become inadequate for its purpose; the sooner the better. We have before said that if all the talk about architecture being the central art and mother of the arts were really acted upon, the large Gallery III. ought to be devoted to architectural models and to drawings of architecture on a large scale. Perhaps the two models admitted this year may prove to be the thin end of the wedge. At all events, the innovation is an encouraging one.

Though the two models in question do not represent the most important buildings illustrated in this year's show, we feel bound to give them precedence. They are sufficiently different in style. No. 1,608 is an example of the highly-finished work of the professional modeller. It represents Sir Arthur Blomfield's "Chapel at Tyntesfield," a work of pure Gothic in the Decorated style, and is finished within and without in cardboard and whatever other materials the professional modeller employs in his delicate craft—ornaments, gargoyles, tracery, and everything complete; and is, as far as we can see, finished within and without with the same minute care. We look through the windows and discern the interior details. The position of the chapel in regard to the ground is accurately shown. On the one side a high bank abuts against the building; on the other side the lower portion of the building, corresponding with the banked-up portion on the north side, is treated in brickwork, as distinguished from the stonework above, so as to carry round the line of demarcation formed by the bank on the north side. As may be supposed, it is a pure Gothic building, representing the one-aisle chapel form, and completely satisfactory from this point of view, though not presenting any novelty of treatment.

The other model (1,509) bears the name of Mr. E. S. Prior, and is about as complete a contrast to the first-named example as could be. It is an outside model only, illustrated however as to its internal arrangements by small plans nailed down on the four corners of the board. It is comparatively rough in appearance, and revolutionary in its tendencies. We do not like to suggest anything so much below the dignity of "professional" architecture, but we strongly suspect Mr. Prior of having made the model with his own hands. He is quite capable of it. The design represents domestic architecture reduced to its first principles; a plan, and a covering to the plan in the shape of walls and roof; but no tricks of architectural detail or ornament. The plan is a very peculiar one. Viewed from the garden side, which is the one turned towards the room, the plan roughly resembles an inverted V. The central portion is a hall, with a small staircase in a projecting bay off it. The drawing-room and dining-room occupy respectively the two oblique wings, on the main floor. This, on the garden side, is on a level with a formal garden placed diamond-wise, and partly embraced by the two wings. Flights of steps lead down from the garden at each side to the basement level, where is the stable block on one side and the kitchen block on the other, each partially separated from the central portion by an arched passage. On the upper side of the plan the kitchen and stable-wings partly overhang, and display a kind of verandah supported on plain circular brick (?) columns. Between these is the forecourt of approach to the house entrance. The plan is a perfectly practicable one, and makes a very interesting little house. What practical objections may be urged are these. There is too much roof, the upper story being entirely in the roof. This looks very picturesque externally, but it is hardly the way to make warm or commodious bedrooms internally. Nor do we think that to have doors, though small and partly sheltered by a verandah, opening directly out of drawing-room and dining-room on to the formal garden plot beforementioned, is an arrangement conducive to comfort in winter. But making all allowance for this, it is a most interesting and original exhibit, and one that is likely to materially aid in rendering the Architectural Room more attractive to visitors than it is generally supposed to be.

Turning to the drawings on the walls, while there are not many drawings of very large or important buildings, the impression from a rapid survey is that there is a larger proportion than usual of designs showing considerable, in some cases more than considerable originality; that there is a greater variety of special interest than usual. Among minor points which characterise the collection, we notice that there are at least five designs for organ-cases (one of them is illustrated in our present number); there may be more that we omitted to notice, but we counted five: of these more in their turn. The two drawings which will catch every eye most prominently are two large water-colours on the south wall, which at a little distance, and at first glance, suggest the idea of being, the one a drawing of an Egyptian pylon, and the other the interior of an Egyptian temple (restored). They represent however, in fact, Mr. H. Wilson's idea for a new church at Boscombe (Bournemouth). *À la bonne heure!* Bournemouth has been up to the present time at about the lowest architectural level of any town we know of; as far as we recollect, except Street's church, there is not a decent building, architecturally speaking, in the place. The exterior, "study for west front of proposed church of St. Andrew, Boscombe" (1,507) derives its quasi-Egyptian aspect from the fact that the wall lines slope inwards from the ground to the top, to an extent which we should think there would be some difficulty in realising in execution with any due regard to economy of material. No plan or section is given, so that this point is evaded. There is an immense mass of blank wall, in the centre of which is sunk a deep round-arched recess with a traceried window buried in it, and a crucifix and other figures over it. Over the arch is a seated figure of Christ with some polychromatic decoration on each side, and the extremities of the mass are finished by coupled windows and shafts of a rather Lombard appearance; the west porch seems also to remind one of Lombard Romanesque. Over the centre of the whole is a square spirelet with a kind of flat table on it, rather reminding one of the effect of the "mortar-board" of a college cap, and a small pavilion forming a finial over it. All this sounds rather *bizarre*, but really it is a most powerful and original conception, though we should like to know what is the scale of it; we should rather doubt if it is intended to be as large and imposing as it looks in the drawing. The interior (1,519) derives its Egyptian effect from the appearance of the large, lofty, dark columns, which appear, however, to be of Classic model, and the rich effect of colouring imparted by the treatment of the drawing; the view looks towards the chancel, and is terminated by a traceried window. In this drawing again there is an idea of large scale conveyed which may be an exaggeration of the actual projected scale of the building. Both drawings are splendid specimens of broad and powerful handling in water-colour, worth looking at on that account alone, and the design, whatever we may think of its practicability in some respects, is

a piece of real poetic invention in architecture.

Both Messrs. Webb and Ingress Bell and Mr. T. G. Jackson exhibit bird's-eye views of their designs for the Christ's Hospital Schools at Horsham. The former (1,511) shows very effectively the fine sweep of the range of buildings. Mr. Jackson's drawing, on a smaller scale, is not in a style calculated to do the best justice to his design, which architecturally is an admirable one; it seems to have been rather hurried in execution, and the untouched white walls with washed-in shadows look rather bare and devoid of texture. The entrance façade, with its tower over the gateway balanced by the circular turrets breaking the line of wall on either hand, would have looked very well; and the chapel beyond comes in very picturesquely to break the line of the lower quadrangle buildings, though as a matter of planning we should have preferred to see it more centrally and less accidentally placed in appearance.

Among church designs is an interesting study by Mr. Skipworth for "A Nineteenth-century Attempt at a Large Cathedral," shown in a perspective view (1,469) and a side elevation and plan (1,514). The latter is hung too high to see the plan well. It shows the same character as in the author's designs for smaller churches, applied on a larger scale and with more elaboration. The west front in the view is flanked by towers octagonal at the base, then breaking into a circular plan, finishing with an octagonal lantern of striped stone and brick, with a thin leaded spire rising above it. This is picturesque, but rather wants breadth and dignity for a cathedral. The centre tower is an octagon with a dome-like roof, and a parapet that is half Renaissance in style, though the other details are Gothic. The centre tower groups with lower transept towers which form with it a large central mass, and this massing of the centre is the most striking point in the design, which shows a great deal of cleverness.

We may occupy the remainder of this article with considering the other church designs in the room, taking them in numerical order. Messrs. Prothero & Phillot's "New Chapel, Cheltenham College" (1,413), shows the exterior of a building in the usual type of a Gothic college chapel, with nothing especial to remark on in the design; the east front is richly treated, with a wide traceried window and the wall space above occupied with niches and sculpture. It is rather amusing to see the one break-out from orthodox Gothic in the Renaissance treatment of the little cupola over the bell-turret; a slight fling in the direction of freedom which seems odd in combination with the completely orthodox Gothic of the remainder of the building. Mr. Ernest Newton's "St. Swithin's Church, Lewisham" (1,414), shows the interior of a church designed on very simple lines, with heavy moulded tie-beams; the nave wall is divided up into bays by mullion-like pilasters (if they may be so called) springing from the caps of the plain octagonal piers. Considering the simplicity and solidity of the rest of the design, the tracery of the east window seems rather too "busy" in design and somewhat thin in proportions. Mr. Mitcham's "St. Saviour's Priory Chapel, Haggerstone" (1,433), is a small coloured interior in a very massive Romanesque style, with the unusual feature of a stone barrel vault into which the round arches of the arcade cut; the whole is treated with great solidity; the vault is decorated with bands of painted foliage sharply defined by boundary lines, and arranged with angular breaks in somewhat the fashion of a Greek key pattern on a large scale; whether this is the best way to decorate semi-circular sufaces may be a question; the square lines and angles of the decoration do not seem to harmonise very kindly with the curved surface of the vault; but the whole treatment is broad and massive. The exterior (1,443) is a piece of nearly plain brickwork with a stone modillion cornice let into it for a certain distance, and terminating on itself in a rather accidental fashion; it seems like a length of cornice cut off and inserted here for no special object; there is a low tower with a spirelet issuing from the middle of it; this portion of the exterior has a character of its own. Mr. Jackson's "Ridley College Chapel" interior (1,434) is illustrated in the present number, and we refer the reader to the lithograph; the organ case is very effectively treated; the timber roof seems rather thin and wanting in mass, though this may be admitted to be in character with the general style adopted. Mr. Champneys' "Proposed West Front, Manchester Cathedral" (1,455), is shown in a geometrical elevation which we cannot admire very much; it may be described as Perpendicular Gothic freely treated; there is a highly-enriched porch with a battlemented finish, and a square mass of building above also furnished with battlements, filled with open tracery in the centre portion; at the angles are open octagon lanterns in two stages and with stone domical roofs; this is the most original feature in the design, but the whole looks rather heavy and squat. Why does Manchester Cathedral require a new west front at all? Messrs. Paley, Austin, & Paley's interior of the chapel for Christ's Church Schools, Horsham (part of their competition design) is excellent regulation Gothic, but presents nothing for remark, except the treatment of the springing of the vaulting ribs just above the cap of the vaulting shaft, which is treated with panelling stopped by a small cornice or string a short way above the springing. Is this meant as an architectural definition of the portion of the vault built as a *tas-de-charge*, that constructive device in vaulting about which Mr. Spiers propounds a question in a letter on another page? The same architects' design for the rebuilding of All Saints Church, Hertford (1,464) is another piece of orthodox Gothic, a richly treated and lofty church with a massive western tower, to which a little special character is given by the rather unusual accentuation of the staircase turret.

Mr. Norman Shaw's Church of All Saints', Swanscombe (1,467), is also a Gothic church in all its details, yet does not impress one as a mere revival of Gothic. It is a small church of great simplicity of design with a large low square tower standing over the east bay of the nave, the easternmost piers being strengthened to receive it, but not looking quite massive enough for the proportions of the tower. As there is no section, the method of construction is not shown. The tower is furnished with battlements on raking lines, forming a kind of pediment, with solid blocks of masonry at the angles; the roofs, which are high, come down low on the walls, the square-headed mullioned windows finishing immediately under the eaves. The design gives the expression of simplicity suitable to a country church, combined with solid and monumental appearance. It may be compared in this respect with the drawing of another rural church (1,489), also with a low central tower, but which wants the simplicity and massiveness of Mr. Shaw's design, and looks weak as compared with it. Messrs. Carvill and Passmore's design for the chapel for the Hospital at St. Peter Port (1,491) is another of the simple class of designs, shown in a tinted side-elevation; the chapel appears to occupy the upper story, the chimneys form the lower story running past it; the chapel is sufficiently marked by the larger mullioned windows belonging to it, and the treatment is suitable for the situation. Mr. F. Bright's sketch for a "Village Church" (1,505) comes under the same category. This is also a tinted elevation, and has rather a family resemblance to other designs for village churches which have been seen lately; to design a village church seems to be a rather favourite occupation now, and the types are rather similar; low square towers and low square-headed windows seem to be the main ingredients. They tend to get a little too like each other.

Mr. Leonard Stokes's "All Souls' Church, Peterborough" (1,494), is a very pretty pen drawing, but presents little for remark, as in fact not much of the church is seen except the west end. Mr. Baker King's drawing of alterations to nave and new chancel for Christ Church, Southwark, an interior view (1,516), does not show us what the alterations to the nave consist in and what is original; but the chancel appears to be an addition in Romanesque style to a classic church; we do not see the suitability of this. Mr. Horsley's drawing of the exterior of the design for a new church at Ipstones, Staffordshire, seems at first sight almost too simple a matter for exhibition, as merely the exterior of an octagon apse; but it gets character from the treatment, the piercing of only one face of the wall with a window, leaving the others plain, and the introduction of the figures of Christ and Saints in sculpture over the window. The new chancel at Edwalton Church, by Messrs. Brewill and Bailey (1,544), shows little originality except in the manner in which the figures over the rood-loft are perched on conventional branches, and the effect is a little too playful for a sacred subject. Mr. Nicholson's perspective of the new church for Cockington makes it look a good deal larger and more massive than it can really be according to scale (the scale-drawings were published in our issue of June 30, 1894), and the somewhat too assertive treatment of the tower wants toning down a good deal. Mr. Jeffery's drawing of the Anglican College, Jerusalem (1,549), a large cleanly-executed pen drawing, is of some interest. The domain is guarded by a lofty bare wall cut into plain battlements at the top, and a gate tower of the same character, beyond which (it is a bird's-eye view) is seen a large three-aisled church with very low-pitched roofs and treated in a very plain and solid manner. Except a traceried window at the end, there is not much to be made out of it in detail, however, and there is no plan except an outline block plan.

We can only just notice Mr. Weatherley's interior of Stanford-on-Soar Church, an orthodox Gothic interior with the wall above the chancel arch covered with a painting of Christ and angels, only indicated in monochrome, however (the drawing is in pencil), and Mr. Goldie's St. Ethelbert's Church and Presbytery, Slough (1,567), a water-colour drawing of a solid-looking Gothic stone church, with which the presbytery, a secular-looking square house, does not harmonise. There remain three designs of considerable interest. Mr. Caröe's sheet of drawings of St. Michael and All Angels', Colehill (1,548), shows what may be called a rural church with a low tower of which the upper stage is in half-timber work. The plan shows a church with a nave and one aisle and (apparently) iron columns; the view of the interior shows a large rather rude timber roof, giving it the general appearance of a Mediæval tithebarn (some of these old barns would have been very good models for the nave of a country church); the font is of Classic type, a scalloped bowl on a column, with a cherub's head carved on it, while the Communion table, of which a drawing is given immediately above the font, is completely and ostentatiously Gothic, as if to emphasise matters in this respect; the pulpit also shows a kind of mixture of Gothic and Jacobean detail, but this is harmonised, the font and communion table do not harmonise, and for a position in the same church look too much as if they came from different countries or different ages. We cannot see the sense of this; there is such a thing as congruity of style. Mr. E. P. Warren's church for a West London suburb (1,562) is a drawing of an interior, with side aisles for passage only, making the nave practically a one-aisled one; there are lofty and rather thin piers of a lozenge plan, and with side caps inserted on them a little below the main roofing-caps,

from which spring the arches of the main arcade. This is all very cleverly contrived; the connexion of the piers with the exterior wall by what we may call stone "bridges," we do not like so much; the upper side of these seems to want something to finish it, some motive for not building up the space to the top. The roof is treated as a barrel vault with wooden ribs on which a simple but effective colour decoration is applied, as also some painted foliage ornament in the spandrels between the arcade and the cornice.

The exterior and interior views of the new Church of St. Etheldreda, Fulham (1,559, 1599), by Mr. Skipworth, are well worth attention. The exterior style of this design does not differ materially from that of one or two other designs by the author which have been published in our pages; as usual, it is very graceful and very original, and drawn in a very charming style. The interior shows a great deal of special treatment. This is also a one-span church. The piers project as square masses internally, with a lofty semicircular arcade connecting them, but with the arches kept free of the wall so as to leave a deep shadow. The vaulting springs from corbels inserted in the piers between the parting of the arches. There is a passage kept in rear of the piers by means of openings like the triforium passage openings in Mediæval churches. At the east end is a lofty flight of steps up to the choir, or rather three flights; at the centre, and at the sides behind the main piers. The whole treatment of this portion of the church is very effective and original, but can hardly be explained apart from the drawing. We shall publish an illustration of it shortly.

We have drawn attention to the qualities of originality in some of the church designs exhibited, because we are more and more convinced that the orthodox Gothic revival type of church is a thing of which the interest is entirely gone. If it is done, it is no doubt important that it should be done well, and with adequate knowledge, and there are two or three examples of this in the room, especially those of Messrs. Paley, Austin, and Paley. The work of these architects is thoroughly good of its kind, but it is a kind in which the world is ceasing to feel interested; and it is certain that success in the immediate future will attend rather on those who can infuse new treatment and suggestions into church architecture, even when mainly based on the Mediæval model.

NOTES.

THE meeting of members only at the Institute on Monday night to consider the question of the new form of building contract, ended in an adjournment, ostensibly (and perhaps mainly) to give the Provincial architectural societies opportunity to study it and express their opinion on it. An attempt to refer it back to the Practice Committee for re-consideration was met by an emphatic intimation that the Practice Committee would not reconsider it, having given every attention possible to it. With this attitude on their part we sympathise. There are people at the Institute who would pick holes in any and every form of contract proposed. The alternative form of arbitration clause proposed by the Institute of Builders, and which has been brought before members of the Institute generally, is one which it would be absurd to expect any architect to accept; it would simply mean delivering himself over, bound hand and foot, to any contractor who wished to make himself troublesome. We are privately told (not officially) that the main cause of the Builders' objection to the Institute arbitration clause is the provision that nothing is to be submitted to arbitration till the completion of the contract, without the consent of both parties; we are told that some architects are unreasonable, others have unreasonable clients whom they cannot control, and that the refusal of a certificate under such influence, when it has become fairly due, may be most prejudicial to a builder with small capital. This is no doubt true, but the architect may answer that some builders are unreasonable and litigious, and that to give them the power to go to arbitration at any moment would put the architect at their mercy, and contractors must remember that the architect is properly *master* on the works, and must remain so. We were prepared to give due weight to the builders' argument above referred to, but we are inclined to think the argument from the architects' point of view is even stronger. And the Builders' Institute have now, it is to be feared, alienated many of their friends by their exceedingly bad taste in sending round a circular letter to all the members of the Institute of Architects, behind the back, as it were, of the Council, endeavouring to prejudice the case by statements as to the action of the architects which are not borne out by the facts. The feeling aroused by this ill-advised move on the part of the Builders' Institute has been very strong, and they have injured their cause by it.

THE public meeting held last week with a view to urge on the County Council the necessity for proceeding with a scheme for the improvement of the communication between Holborn and the Strand was not held too soon. The blocks which are constantly occurring in connexion with the traffic between Euston Station and Waterloo —we take one instance alone—are a cause of great public inconvenience. The sole reason why some reasonable scheme of improvement has not yet been carried out is, that the late County Council were so enamoured of the principle of betterment that they would not agree to any scheme in which this principle was not included. The late County Council, indeed, have delayed necessary London improvements, simply for a theoretical and not a practical reason. The main object which they should have had in view was the carrying through of certain work required in the public interest. If Parliament sanctioned the scheme as presented to it, well and good. If it would not agree to all the details, the work should have been done as Parliament would allow. We hope, therefore, that, whatever may be the views of the present Council on the question of betterment, they will not allow them to stand in the way of urgent public improvements. From what occurred before the Committee of the House of Commons on the Tower Bridge Approach Bill, there seems some chance of a more practical spirit prevailing. That Committee has passed this Bill with the Manchester clause, as it is called, as to betterment inserted, and have rejected the alterations which the County Council wished to make in it. For the moment, the decision of the Committee has been accepted, and if it is not rejected by the Council, this troublesome question might be laid to rest.

THE state of matters in regard to the water question in London cannot be regarded as satisfactory. As we have more than once stated, the transfer of the water supply to a public body should have been effected by a Bill dealing with London and the suburbs, and introduced by the Government of the day. At present it seems probable that only two of the eight Bills promoted by the County Council will be proceeded with this session. If this turns out to be the case and the two Bills before Parliament become law, this ridiculous position would follow, that one part of London will, for a time at any rate, have a Municipal supply of water, whilst another will have the supply from private companies. On Monday last, also, the House of Commons sent a Bill of the Chelsea Company, by which that body asked legislative leave to borrow 50,000*l.* for new mains, to the same committee which is considering the Bills of the County Council for the acquisition of the water companies. But if it is necessary for the Chelsea Company to lay new mains, the necessary sanction should be granted at once, and the Bill of the company should have been sent to an ordinary select committee. The question of the transfer of the water supply to a public body is quite separate from necessary enlargements or amendments of the existing system.

THE President of the Board of Trade has lost no time in introducing his Light Railways Bill, which was read a first time on Thursday last week. The measure is, of course, based upon the representations of the Committee appointed to inquire into the subject, and promises to remove some of the existing obstacles to the construction of light lines. Mr. Bryce estimated the cost of construction at 3,000*l.* or 3,500*l.* per mile, and stated that the average cost of constructing existing light railways was 10,000*l.* per mile. He believes that the relaxation of the requirements of the Board in regard to construction and working of the proposed lines, will induce railway companies to construct branches at their own cost, and without subsidy from any quarter. Permission is given to County Councils to authorize such lines, after examining the proposals of the promoters and submitting a Report to the Board of Trade, the latter being responsible for seeing that the local authorities do not go beyond the scope and intention of the measure. If the Bill becomes law, it will soon be seen whether there is really that demand for light railways in this country which would be inferred from the resolutions so frequently passed by agricultural and other bodies. The tone of the speeches at the first reading was not particularly encouraging, and expressed disappointment rather than gratitude.

AN important advance in autographic telegraphy has been made by Mr. Amstutz, a well-known electrical engineer, of Cleveland, Ohio, U.S.A. He has invented a sending and a receiving instrument by means of which copies of photographs can be sent any distance and reproduced at the other end in a form ready for press-printing. The importance of this invention to illustrated newspapers will be readily appreciated. These instruments can be used with existing telegraph wires, and the time required to send a copy of a photograph is only a few minutes. In the *Scientific American* a full description of the receiving and sending instruments is given, together with two excellent photographs transmitted in this manner. Both the receiver and the transmitter have a revolving cylinder with a synchronising device to govern the speed. In the transmitter there is a tracing pencil, and in the receiver a graving tool. As in a well-known method in photogravure the films for use in the transmitter are formed by obtaining a gelatine relief by exposing bichromated gelatine to the action of light beneath a negative. The film is then put on the cylinder, and as it revolves the tracer rises and falls with the undulating surface of the film. Hence, by suitable electrical devices, a varying current is sent along the transmitting wire, and a varying pull produced on the graver tool by the coil of wire that surrounds it. The graver works on a plain gelatine or wax film, which is attached to the receiving cylinder. As these cylinders revolve, in a similar way to the cylinder of a phonograph, it will be seen that a copy of the picture will be made on the receiver. All that it is then necessary to do is to electrotype the receiving film, and it is ready to be printed from. For rough illustrative work, as in newspapers, the instruments are of simple construction, and produce effective sketches. For art work they require further elaboration, and would consequently be more liable to get out of order. They can also be employed for engraving designs on gold and silver ware, the receiving and sending instruments being

placed side by side. Although the invention contains nothing strikingly new, combining as it does the principle of the telephone and the phonograph with well-known methods in photography, yet it is none the less an important advance over the older methods of autographic telegraphy in mechanical detail, as the apparatus is better able to stand ordinary rough usage.

WE understand that the new block of the Record Office will be ready for occupation by the end of next month. It has been erected on the east side of Chancery-lane by Messrs. Foster & Dicksee, of London and Rugby, contractors. The design reproduces, in the main, that of Sir James Pennethorne as seen in the old block, being all that was erected in pursuance of his original scheme (1847) for a large L-shaped building extending southwards to Fleet-street, near Fetter-lane. Mr. Taylor, of the Office of Works, is the architect of the new buildings, which are constructed, without, of Portland oolite from the Weston quarries, with Babbacombe marble for the rag-work. The north portion is being fitted for the storage of records; the south portion is devoted to the staff and office purposes. The Fawcett system has been adopted for the floors throughout, the record presses are constructed of slate and steel. It is expected that the demolition of the houses in Rolls-yard and along Chancery-lane will shortly be followed by that of the Master's House on the north side of the Chapel. That house was built in place of the old Rolls House, by Colin Campbell, at a cost of 5,000*l.* The accounts show payments of 5*l.* 18s. 6d. to James Richards, carver, for "divers trusses for door-cases and chimneys, and for enriching the cornice," 2*l.* for the "mask-head" over the "great door," and 5*l.* 10s. for "carving two lions' heads" and for "mouldings;" and that 44 ft. 7 in. of marble were used for some chimney-pieces and slabs, with 256 ft. of Portland-stone for the "chimney-pieces, hearths, and fire-stoves."* The Rolls House was in early times the Domus Conversorum commonly regarded as the home of converted Jews, who here found asylum under the protection of Henry III. Some extant accounts of the administration of the funds go to prove that there were inmates in the Domus long after the general expulsion of Jews in 1290; as late, indeed, as 1610. But that it was a House of Converts is denied by Mr. Walter Blott in his remarkable work, "A Chronicle of Blemundsbury," 1892. We cannot here rehearse his arguments, or correct the meanings he gives to some Latin words; suffice it to say that he maintains it formed the abode of the Jews' Justiciary and his Court, where the people of his nation resorted for converse and friendship, as well as for determination of their legal differences and adjustment of their affairs. Campbell's building served as an official residence of the Masters of the Rolls until Copley's day; it was then taken for the Master of the Rolls Court, and next, in 1881, incorporated with the Public Record Office. For the extension buildings a total sum of 65,000*l.* was voted by Parliament.

ON Friday last there was an interesting demonstration of photo-ceramic enamels, by Mr. Ethelbert Henry, at the offices of the *Photogram* in Farringdon Avenue. A rough definition of photo-ceramic enamels is that they are pictures produced by photography upon porcelain, glass, and kindred substances, which, by the aid of the furnace, become an actual portion of the surface itself, and thus are a permanent production of photographic art. Owing, however, to the few photographers who have succeeded in this most difficult branch of work, as also the difficulty and uncertainty of the process, and the delicate treatment required, the cost, up to the present, for this class of work has been so high as to be out of the reach of the public generally. Moreover, most of the published instructions were unworkable or misleading. The object of the editors of the *Photogram* was to illustrate some simplification of the details of the process. The following is a brief outline of the *powder* process. It differs from the carbon process in that a transparency instead of a negative is used to print from. After a sheet of plate-glass has been coated with a sensitive mixture, it is dried, placed in contact with a clear transparency, and displayed in a bright, diffused daylight for about ten minutes. Upon removing the plate from the printing-frame, it is dusted with a vitrifiable powder of the desired colour, applied with a tuft of wool; after the plate is sufficiently dusted it is coated with collodion, and when the film is set it is placed in a bath of a saturated solution of fused borax (made by boiling) and water, where it remains for about ten minutes; it is then washed in several changes of filtered water. The film of collodion is then detached and turned over in the basin containing the article to which it is to be attached, being placed in the position required by means of a camel's-hair brush. The article is then dried in a current of air and placed in a tile-painter's furnace, the heat being applied gradually. The furnace is then allowed to cool, when it will be found that the film has become portion of the material. A great point to be observed is that there shall be an entire absence of dust. Some very good specimens were shown, and the process will probably be largely used in consequence of the reduction of expense and length of treatment.

THE Royal Academy Exhibition of this year will be regarded as an interesting one by the (intellectually) middle-class public, because it is full of pictures of incident, which are what they want. That it will be considered a very interesting one by artists we do not expect, though, of course, there are fine works to be picked out. Of these, and the pictures generally, we shall have something to say next week; our first concern is, of course, with the architectural exhibits. The Academy have provided a little sensational surprise for their visitors by hanging Professor Herkomer's large picture, "The Burgomaster of Landsberg with his Town Council," in Gallery VI. opposite the vista from the entrance. As the picture represents the interior of a large room with a central point of sight, and is so large that the sides of the frame are out of sight and the bottom of it close to the ground, the illusion is remarkable, and produces, on first entering, the idea that a new room has been added to the Burlington House *suite*.

THE "Connoisseurs' Treasures" exhibited at the Goupil Gallery include various works of Rossetti and Sir E. Burne-Jones, the latter mostly, we think, painted a good while since; among them is the charming and fanciful little "Pan and Psyche." Among the Rossettis "Monna Pomona" is a most subtle study in colour, however little we may admire the head, and the abnormally long throat, which was one of the characteristics of Rossetti's figures. Mr. Whistler's portrait of himself is interesting, also his sea-shore sketch, "Sea and Rain." The finest thing in the collection, to our thinking, is Mr. Legros' grand and powerful landscape, "View in the Pyrenees," more a large sketch, however, than a finished landscape. M. Fantin's "Pastoral," and Mr. Watts's charming little study of "The Baby" are also admirable. The collection includes some fragmentary archaic marbles, some Tanagra figurines of more than usual interest, various bits of Chinese and Japanese decorative work, and a curious drawing, much dilapidated, by Mantegna, "Figures and Animals"—one of those extraordinary medleys of scraps of classical architecture with figures which seem to belong to another subject, which were the delight of some of the Renaissance artists.

ON Friday morning, April 19th, an impressive ceremony took place at Olympia in the presence of a large gathering of the representatives of many nations. The bust of Professor Ernst Curtius, the venerable historian and archæologist, was formally unveiled in the local Museum, which owes its existence to his enthusiasm and untiring efforts. Professor Curtius celebrated his eightieth birthday on the 2nd of September last; but September is a month in which the most zealous archæologists shrink from visiting Olympia: it was therefore thought best to postpone the public ceremony till the time at which the German Archæological Institute makes its annual spring tour through the Peloponnese, a tour now joined by archæologists of many nationalities. The bust unveiled is a copy of that presented by his friends to Professor Curtius in September last, the original adorns his house in Berlin. It is by the German sculptor, E. Schaper, and is an excellent likeness, as the artist has admirably caught the aloof, upward look, so characteristic of Curtius. The copy at Olympia bears the double inscription "Ernst Curtius von Freunden und Verehren Gestiftet 2 September, 1894, and "Ἐρνέστιος Κούρτιος Ἡ Ἑλληνικὴ κυβέρνησις τιμῆς ἕνεκα ἐνθαδε ἵδρυσε." The large hall of the Museum, in the centre of which the bust was temporarily placed, was closely packed with spectators. The proceedings were opened by a speech by the first Secretary of the German Institute, Dr. Dörpfeld, who gave a sketch of the life of Curtius, and dwelt on his own experience when excavating under his direction at Olympia. Dr. Dörpfeld's own views are in many respects, as is well known, diametrically opposed to those of Professor Curtius—indeed, the younger archæologist has spent much of his energies in upsetting the theories of the older. None the less did he pay landing and reverent tribute to the energy and the poetic imagination which had been such a stimulus to himself. M. Kabbadias, Ephor of Antiquities, followed on behalf of the Greek Government. His address was in Modern Greek, and perhaps it is better frankly to own that some of its evident eloquence escaped us. M. Homolle, on behalf of the various non-German Archæological Schools, offered the homage of all conjointly in a speech, the briefest of the day, but a *chef-d'œuvre* of finish and neatness. Mr. Richardson, Director of the American School, spoke a few words in presenting a wreath from his institution. Professor Percy Gardner followed as representing his brother Mr. Ernest Gardner, Director of the British School. He offered a wreath from the British School in conjunction with the Hellenic Society. After some other addresses of less moment, Dr. Dörpfeld, after unveiling the bust, presented a wreath on behalf of H.I.M. the Empress Frederick, and one from Princess Sophia. The wreath from the Empress was of Athenian olive, with a sprig of laurel from Delphi, the rest were uniformly of laurel. The principal persons present adjourned to a banquet, at which, in true German fashion, no less than twenty-seven toasts were drunk.

THE NEW GALLERY EXHIBITION.

WE cannot echo the opinion we read in some of the daily papers, that the New Gallery Exhibition is one of the most interesting which has been held there; indeed, we cannot at all understand the expression of such an opinion, with the recollection of some of the splendid collections of portraits, to name one class of work alone, which have been seen there on two or three occasions during the last few years. There are a good many pictures of the kind which may be called eccentricities, a good many weak productions of no very particular interest, and but a few that can be called works of first-class significance or importance.

Among the latter Sir E. Burne-Jones's "Fall of Lucifer" (135), which in regard to com-

* For these items we are indebted to the courtesy of Mr. W. J. Hardy, F.S.A.

position seems a kind of echo of his "Golden Stair," is a most remarkable work in regard to colour and decorative effect; the gate of Heaven (a very realistic gate) is seen in the upper corner, and the armed group of the outcast angels meanders down from it in a sinuous line, with a remarkable combination of steel armour and blue shadows. It is a very striking picture in all but the faces of the rebel angels, which wear the same sad and inscrutable vacancy of expression to be found in so many of this painter's figures, and which seems to be supposed to suit all subjects alike. It is not so much a conception of the rebel angels, as a study of colour and composition under that title. The same artist's "Wedding of Psyche" (163), is a procession of thin melancholy ladies passing across the picture in a single line, all with abnormally small heads or abnormally long bodies; the centre figure of the line is nearly ten heads high (we measured it with the edge of the catalogue). Sir John Millais' "Time the Reaper" (131) is a much more robust work than either of these. This may be said to represent "Time as Death," an aged figure with the conventional scythe, who has deposited his hour-glass (the sands run out) on the step of a house, the door of which he has commenced to push open, a chink of strong lamplight shining from within into the night. This is a fine and poetical work, and one can only regret that we do not oftener see the greatest and most capable painter of the day in subjects which give some scope to his imagination. Another powerful and successful work is Mr. John Collier's "The Laboratory" (238), in illustration of Browning's well-known and sinister little poem, at the moment when the lady, taking off the glass mask which she had used to protect her from the fumes while the poison was being compounded, receives the deadly little phial from the hands of the old chemist. Both figures are well conceived; they answer to the conception of the poet; the details are thoroughly studied; the picture is one of Mr. Collier's most successful, though not, perhaps, most pleasing works; the subject almost precluded that. Mr. La Thangue's "In a Cottage, Nightfall" (262) is a pleasing domestic Idyll, but hardly justifies the size of the canvas. Mr. F. Brangwyn has painted a large picture of St. Simeon Stylites receiving the sacrament before his death (271), a striking and pathetic work; but he fails to give the up-in-air effect of the scene; the square area of the capital on the top of the column occupies the centre of the canvas, and the houses are seen far below, but the aërial perspective is not successful; we do not realise sufficiently that this is the top of a lofty column; it does not stand out sufficiently from the surroundings. There is a fine effect of lurid sunset over the hill, which seems in sympathy with the tragic subject of the picture. Mrs. Swynnerton's "The Sense of Sight" (259; is this one of a series of the "Five Senses"?) is an original and interesting work, and a success in its way; it shows the half-length figure of a woman with face turned upwards towards the sky and with a singularly eager and bright look in the eyes which quite answers to the title of the picture. Like all this artist's works, it is painted in a very full and broad style, and with a very fine sense of colour.

Mr. Tadema's central work, "Love's Jewelled Fetter" (73), a Roman girl showing her ring to another, is to some extent a representation of a former combination; a terrace, a mass of azaleas, and a white marble pilaster in the rear; the distant landscape seen on either side of it. Mr. Tadema is never careless, and never slurs anything over, so that his works maintain their level in the technical sense, but the picture has even less point or subject than usual with him, and the materials comprising it are not so effectively arranged as in many of his works. His other contributions lead us into portraiture; "Mrs. Rowland Hill and Children" (67), and "Mrs. George Simonds and Family" (79), are portrait-groups of heads with only just space for them between the lower and upper rail of the frame; the result is rather awkward; they seem uncomfortably squeezed in. "Mrs. Simonds and Family" includes Mr. Simonds, of whom an excellent likeness is given. Among the larger portraits of the year Sir E. Burne-Jones contributes a curiously coloured one of "Lady Windsor" (119), a kind of study in greys, the lady standing in front of a doorway, the surroundings of which are grey-tinted wainscottings, her dress in a similar subdued key; the figure is statuesque, sad, and deficient in vitality as a portrait. No one can say this of Mr. Sargent's portrait of "Miss Rehan" (199), which has vigour enough, and is almost flaunting in effect; in a pictorial sense it is rather too great a mass of white. Mr. Holman Hunt contributes a portrait of "Miss Gladys Holman Hunt" (194), of which those who know the same artists's previous productions in life-size portrait will be able to frame for themselves a pretty clear idea. It shows the same extraordinarily realistic painting of all kinds of detail without any harmonising element, so that the picture appears to be a number of patches of different substances put together like a mosaic; and the same singular views as to the colour and texture of flesh which have been exhibited in other portraits by the same hand; remarkable works in a sense, no doubt, but representing an attempt at the impossible in painting, over which a great artist has wrecked his genius.

As usual, landscape painting at the New Gallery takes the form, for the most part, of studies of special effect rather than of landscape in its every-day aspect. There seems to be a leaning towards misty and undefined effect even among those who in general are more robust in their style, as in the case of Mr. East, whose large picture of "The Misty Mere" (225), hangs at the end of the north gallery. The New Gallery atmosphere pervades the work. Mr. Hennessey tries "Winter Twilight" (40) with success; Mr. Wetherbee paints "Summer" (249) in a tender haze, with a nymph-like figure seen at the edge of a pond in the shade; in his other work "A Sleeping Mortal" (110) the nude water-nymph, who stands up in the middle of the pond, is so thoroughly like a middle-class female of ordinary type as to make the whole thing ridiculous; it suggests the idea that the village schoolmistress had lost her clothes while bathing, and was trying to steal home by night unperceived. Mr. Hartley makes a good attempt to represent the effect of snow and frost on a winter's night. Mr. Logsdail gives a view—an elevation one might call it—of the sea-front of Venice (71) under a very bright sun and blue sky, giving its reflection to the water, the result being a very bright and sparkling aspect of the city. Mr. Laidlay's "Counting the Flock" (35) and Mr. Orrock's "Stake-nets, Holy Island" (95) are interesting studies of landscapes of which the subject is almost nothing, the treatment everything.

Among landscapes that are more in the beaten track are Mr. Hemy's solid painting of a city seen from the river (7), Mr. Thorne Waite's "Strayed Cattle" (210), and Mr. Adrian Stokes's "An Avenue in the Marshes" (253), not one of his most impressive works however. Mr. Nettleship, in "Evensong" (30), gives an admirable study of a lion having his evening roar. In "The Pigeon's Resort" (133) and "Varenna" (137), Mr. Formilli, who has come into notice in London lately as a designer of sgraffito decoration for houses, shows also that he can make effective drawings of picturesque architecture.

The sculpture is not of very much interest as a whole. Mr. Onslow Ford exhibits a bronze version of a beautiful bust which was seen recently in marble at the Royal Academy, and Mr. Albert Toft is very successful in a bas-relief head of "Miss Burnett" (427); he exhibits also a statuette under the title "Evening" (439). Mr. Drury, Mr. Pomeroy, Mr. E. R. Mullins, Mr. Frampton, Miss Rope, &c., are among the exhibitors; but none of them exhibit works of importance.

LETTER FROM PARIS.

THE two great Salons are now open,* and the exhibition of the Pastellistes at the Georges Petit Gallery, which has recently opened, is in consequence nearly empty. The exhibition is a poorer one than many of its predecessors. Except M. Lhermitte, who remains always the sound and vigorous painter of rustic nature, the Pastellistes are not showing much progress. The portraits and studies of M. Gervex are like chromo-lithographs; M. Besnard fatigues the eyes with his violent fantasies in colour; while M. Dagnan-Bouveret, on the other hand, exhibits only works almost destitute of any colour at all. The landscapes and architectural subjects by M. Nozal, who interprets well the scenes of the South of France, and the portraits by Mdme. Breslau are worth attention. In the same establishment Mdlle. Louise Abbéma exhibits her new works, paintings and water-colours, of bright colour and great freedom of execution, the flower-pieces especially.

* To their contents, we shall, as usual, devote a separate article.

There is little to say about the "Independants," whose exhibition has also served as one of the preludes to the opening of the large Salons. Their exhibition, formerly in a modest booth at the Tuileries, has now taken up its quarters in the Palais des Arts Libéraux, where the walls are occupied with about 1,500 eccentricities, the majority of them not worth a moment's attention.

The work of installing the museum of the Paris Municipality in the pavilion at the Champs Elysées is in active progress. The whole of the large nave has been repainted, repaired, furnished with heating apparatus, and has been divided up by partition-walls into small galleries where the works exhibited can be classed according to their nature and date. On the left are arranged all the sketches of competitions and commissions (in painting and sculpture) intended for civil edifices; on the right, all those having relation to the decoration of churches. The first intermediate avenues are dedicated to sketches of works executed in the new Hôtel de Ville and to some few vestiges of the old Municipal palace. There are among others a series of sketches made by Eugène Delacroix, the authenticity of which—or of some of them at least—has however hardly been sufficiently demonstrated. The other rooms are reserved for historical portraits and sacred pictures from various churches in Paris, among others a very fine painting of the birth of the Virgin by Restout, a picture by Léon Coignet, the "St. Vincent de Paul" of M. Bonnat (one of his best works), the "St. Bruno" of M. Jean Paul Laurens; and lastly for the works purchased every year from the Salon. All this, however, can only be a provisional installation, if the Palais de l'Industrie is to be demolished in three years, and the Pavillon de la Ville also, in view of the 1900 Exhibition. It may be observed here that the demolition of the Palais de l'Industrie, decided on by the General Committee for the 1900 Exhibition, will probably arouse some very sharp opposition on the part of the Municipal Council. The fact is that this building, of which the State seems inclined to dispose as it pleases, is really the actual property of the Corporation of Paris. The latter, in order not to make difficulties, has always allowed the State Government to dispose of the building for various exhibitions, artistic and other, without raising any question of rent. But the moment the first beginning of its demolition is made, the Municipality will probably assert its rights, and refuse its consent to the destruction of the building, as well as of the Pavillon de la Ville, except on the condition that the State, as an indemnity, shall erect a special building for the Municipal Museum, of monumental style and sufficiently large to accommodate an artistic collection which is increasing year by year.

In the last number of the *Builder* mention was made of the decision of the Jury of Sculpture at the Salon in regard to the monument to Emile Augier submitted by the Duchesse d'Uzès. Thanks to the lady's influence with the Press and the Administration, the monument, refused admission within the Salon, has been set up outside, opposite the east doorway of the Palais de l'Industrie. The result proves that the jury were quite right to be inflexible. Whether the work was or was not really executed by the lady who claims it as hers, it is a poor concern, with no artistic merit, and quite unworthy of the premium which the Municipality of Valence has awarded to its author.

M. Dalou, who has sent nothing this year to the Salon of the Champ de Mars, is just putting the finishing touches to a monument which will shortly be erected at Batignolles, in the Square des Epinettes, to the memory of Jean Leclaire, the well-known institutor of the system of participation in profits by the workman; and who, commencing life himself as a workman, rose to be the head of a great house and an important reformer in regard to the relations of capitalist and labourer. M. Dalou represents Leclaire standing and holding out his hands to an artizan whom he seems to wish to draw towards him. The group is raised on a pedestal designed by M. Formigé, the architect.

Another important monument, that to Corot, is to be erected in the Parc Monceau, and is announced to be inaugurated on June 28, 1896, the centenary of Corot's birth. The Committee have selected M. Henri Cros as sculptor, and it is proposed to organise an exhibition of the works of Corot in the Musée Galliera, to celebrate the occasion.

A rumour that the ancient Church of St. Pierre at Montmartre is in a dangerous state proves unfortunately to be true. It is asserted that there is an intention to replace it by a new building, which, it is to be hoped, is incorrect. St. Pierre

at Montmartre is one of the most interesting Mediæval monuments in Paris. Along with St. Julien le Pauvre and St. Martin des Champs, it is one of the few edifices in the Early Gothic style still surviving in Paris, and its disappearance would leave a great gap in the historical documents of French architecture. If the building is really in a dangerous state, it must be perfectly possible to strengthen and repair it, without the alternative of destroying one of the most interesting pieces of ancient architecture in Paris.

We have in a previous letter referred to the necessary repairs and restorations to the Church of St. Eustache, to be carried out shortly. The repairs, which, it is estimated, will cost about 600,000 francs, will be mainly required on the southern façade, which faces the Halles Centrales, and which has already been exposed to two serious misfortunes. It suffered from a fire in 1849, and it was when carrying out repairs after this disaster that the late M. Baltard discovered the mural paintings attributed to Simon Vouet, which had been whitewashed over in the reign of Charles X. The southern façade suffered still worse during the retaking of Paris after the insurrection of 1871. The architect then employed, Radigon, was cramped in his operations by insufficient funds, and a more thorough repair has to be carried out this year under the direction of M. Gion.

The jury of the École des Beaux-Arts has given its award for the Chenavard Prize. The first prize, in the section of Architecture, has been awarded to M. Besnard, pupil of M. Pascal: the second to M. Chifflot, pupil of MM. Daumet and Esquié.

We have already referred to the death of Paul Chenavard, at the age of eighty-seven. He had for a long time retired from active work, and many believed that he was already dead. He was a native of Lyons, and studied under Hersent, Ingres, and Delacroix, and after a considerable stay in Italy, came to Paris and exhibited his first important picture, "Luther at the Diet of Worms." He subsequently painted the "Vote on the Death of Louis XVI.," which, after being exhibited at the Salon of 1833, passed successively into the collections of M. Thiers, then of M. Ledru-Rollin, and finally of Prince Napoléon. Being commissioned by Ledru-Rollin in 1848, to decorate the Panthéon, he undertook a series of historical pictures which are now to be seen at the museum at Lyons, and some of which figured in the 1855 Exhibition at Paris. These compositions deal with the history of civilisation "from Genesis to the French Revolution." At the Luxembourg there has been exhibited for twenty years a large symbolical picture by Chenavard representing "La Fin des Réligions"; this picture was in the Salon of 1869. The gods and goddesses of mythology are represented as overthrown by thunderbolts, and in attitudes somewhat recalling the figures in the "Last Judgment" of Michelangelo, and the figure of Christ moves triumphantly over the overthrown deities of Paganism. This picture, formerly much thought of, is painted in a uniform grey tone which is very disagreeable, and the attitudes of the figures are melodramatic and violent; the whole thing is a kind of Michelangelo at second-hand. There is energy and learning enough in the composition, but no real originality.

The old artist, who was an intimate friend of Delacroix, was all his life a dreamer, possessed by a chimerical idea of making art the interpreter of every branch of human knowledge. He sacrificed to "philosophy" the charms of colour, which he regarded as beside his purpose. He was inconsolable for the collapse of his great scheme, when Napoléon III. gave over the Panthéon to the Catholic ritual, and retired to an atelier in the provinces to occupy himself with his mystic aspirations and recollections of his past ambitions. He was not without official honours, having been created officer of the Legion of Honour in 1887, and corresponding member of the Académie des Beaux-Arts in 1855. He had already given his library and nearly 40,000 engravings to his native town, Lyons, to which also he has left all his fortune, to be applied as a fund for the relief of aged artists.

The death is announced, at the age of seventy, of the painter Alexandre Thiollet, a pupil of Drolling and Robert-Fleury. He had exhibited every year for fifty years. He commenced with landscape, then took to sea-pieces, and in his later years betook himself to painting views on the banks of the Seine, remarkable for their bright and atmospheric effect.

The Société Centrale des Architectes has just settled the programme for the Congress of Architects, which will be held this year from the 9th to the 15th of June. The 9th will be devoted to a visit to Angers; the 10th to the journey from Angers to Bordeaux, where the remainder of the meetings will be held, including excursions to St. Emilion, La Montagne, and Libourne. On Thursday, the 13th, the usual banquet will take place, and on the Friday the Metropolitan members of the Congress will return to Paris. On Saturday, the 15th, will be the distribution of "récompenses" in the Hemicycle of the Ecole des Beaux-Arts, followed by a closing dinner in the evening.

THE ARCHITECTURAL ASSOCIATION.

THE ordinary fortnightly meeting of the Architectural Association was held on the 26th ult. at the Meeting-room of the Royal Institute of British Architects, 9, Conduit-street, Mr. E. W. Mountford, the President, occupying the chair.

The minutes of the previous meeting having been read and confirmed,

The junior Hon. Sec. (Mr. Banister F. Fletcher) moved a vote of thanks to Mr. L. Shuffrey for entertaining the members to tea at the Spring visit to St. Peter's Church, Ealing, on March 30, and to Mr. G. Montgomery for conducting the members over the Building Trades Exhibition on April 3.

The vote was unanimously accorded.

House-list for next Session.

The President drew attention to the fact that Mr. Pite had commenced his lectures on "Modern Design," and that there was still room for members. He then read the committee's nominations for the house-list for the next session, as follows:—President, Mr. W. D. Caröe, M.A.; Vice-Presidents, Mr. G. H. F. Prynne and Mr. F. T. W. Goldsmith; Committee, Messrs. J. Begg, A. Bolton, A. C. B. Booth, A. W. Earle, O. Fleming, C. de Gruchy, F. G. F. Hooper, the Hon. A. McGarel Hogg, W. B. Hopkins, H. Huntly-Gordon, G. A. Lansdown, Theo. Moore, E. W. Mountford, A. B. Pite, H. A. Satchell, W. H. Seth Smith, E. H. Sim, and E. Woodthorpe; Hon. Treasurer, Mr. H. W. Pratt; Hon. Librarian, M. J. W. Stonhold; Hon. Secs., Mr. B. F. Fletcher and Mr. A. H. Hart; Hon. Solicitor, Mr. W. H. Jamieson; the Hon. Assistant Librarians, Mr. C. H. Freeman and Mr. E. W. M. Wonnacott; Hon. Auditors, Mr. E. H. Sim and Mr. F. G. W. Buss; Assistant Secretary and Registrar, Mr. D. G. Driver.

The senior Hon. Sec. (Mr. F. T. W. Goldsmith) announced that the nomination of officers of the Association would take place on May 10, and read the by-law relating to the subject.

Mr. Whall then read a paper on "Painting and its relation to Architecture," which we print, with some omissions, on another page.

In the discussion which followed,

Mr. Halsey Ricardo, who proposed a vote of thanks to Mr. Whall, said he should like to allude to one or two remarks on which the reader of the paper laid great stress; but which, although perfectly true and meriting the sympathy of all present, required some caution in the application. Mr. Whall talked about the pursuit of beauty. Beauty should be the outcome, not the aim, of one's work. The measure of beauty was the quality and strength of the artist's passion in his subject, and it was the fire of his passion that burnt into beauty—the passion of the Gospel he had to deliver. Moreover, beauty was a Proteus, always changing its colour and its shape. It was the privilege of the artist to create new canons of beauty. Every fine piece of fresh work added something to the area of appreciation and enlarged the definition of beauty: and a man who went for producing a piece of work with his whole heart would, he thought, let the question of beauty rather take its chance and be content to assume that a beauty would come from the fervour of the painting, which would in after time be recognised as beauty, though perhaps at the actual time the epithet might be withheld or repressed. There were many instances of work that, on their production, were condemned for their want of beauty, that were now considered as classical, true inheritors and transmitters of the sacred lamp. He had been listening the previous evening to the overture to Tannhaüser, a piece of music which was written in a kind of white-heat of fury against the accepted, and so far the only known, standard of beauty in that day. It was not thought beautiful then. Tried by competent and liberal-minded men, it failed to meet the test. It was produced in Paris, and pronounced by the musicians there as bad art; while Berlioz, who was working in much the same direction, pronounced it such a mass of cacophony that it deserved to be hissed, as it was. Subsequently it was performed at Dusseldorf, and Schumann, who went with an open mind, and who embodied intelligent and enthusiastic appreciation, after listening to it, gave it as his deliberate verdict, that although the composer had apparently a great deal of dramatic feeling, and showed unusual power over the orchestra, still the writing was intolerable to a cultivated musician's ears. Then there was the stress laid on technique. Mr. Whall quoted a grotesque pronouncement from the *Studio*:—"Complete mastery over materials is, after all, not everything—in fact, from the artistic point of view, work only begins then." Most people scarcely dared hope to attain to a little bit of mastery before they died—not earlier. It was natural for a painter, always striving to improve his methods, to say that this was the one thing a painter had to do, but he (the speaker), as an outsider, rather doubted the value the painter put upon it. If one thought of the pictures that had modified the world's history—so tinged our globe, so to speak, that we could never look upon it as of the same colour again—one might question the part that technically-perfect pictures had played in the process. If one may trust Browning, the painters themselves had their misgivings. Andrea del Sarto, "the faultless painter," thus sadly estimates his life: "All is silver-grey; placid and perfect is my art." He names his rivals, whom he could surmount both as regards the laying-on of their colour and the correctness of their drawing, "but themselves, I know, reach many times a Heaven that is shut to me." The man whose work (in the speaker's opinion) had affected the world of painting most markedly—of late times—was Blake, whose imagery, conceptions, and painting, had sunk into men's minds, opening out unthought-of avenues of development and travel. Mr. Whall had instanced Albert Moore as one who had gone for beauty and technique. And the result? After a course of his pictures one comes away cloyed, with a general impression that one had been passing one's time in company with a parcel of girls who had begun the day by grossly oversleeping themselves, had next spoilt what appetite they might have had for breakfast by indulgence in toffee and caramels—it was now eleven o'clock and they did not know *what* to do. Fancy having to live surrounded by representations of acute boredom! One should want to consider not merely what a picture was intrinsically, but what power of wearing it had for those who were to live with it. Pictures pitched in an exalted key of fervour or emotion were suitable for occasional attention—as in churches, public halls and council-rooms—whilst for every-day intercourse one wanted something that had more of the elements of suggestion in it. After visiting the Stanze at the Vatican, the speaker came away with the feeling that notwithstanding the many excellences of the frescoes, they would be dreary and exhausting rooms to live in. Indeed, he was nearly rashly coming to the conclusion that frescoes were not companionable things at all, and unfit for private life, when he came upon the chapel in the Riccardi Palace at Florence. Much of one's sensations then were due, doubtless, to the splendour of the colour on those walls, but something was contributed by the subject of the paintings. No matter what the weather was, what the clock or the thermometer said, as long as there was light enough, or whether one was tired or fresh, one there stepped past the ivory gate into the world of beautiful dreams and spent long hours in the very finest company, traversing, hand-in-hand, the enamelled meads of the Ideal. There were never hands painted with such passionate pleading in them, as in Millais' "Huguenots"—nor such a divine kiss given as by the angels to the shepherds in Botticelli's "Nativity of Christ" in our National Gallery; yet neither of these men were comparable to Veronese in mastery of the pencil. Thinking over the kind of picture one would wish to live with, the element of repose presented itself. Perhaps unduly, at present, to us in the nineteenth century, because we lived at such high pressure, and amongst so much fever and fret, we overestimate the value and peace in these stirring times. How much of the charm of Veronese's "St. Helena" came from the beautiful repose of the picture! Another element, which appeals to the fancy, was the quantity of suggestion, due in some measure, possibly, to the picture being—as Mr. Whall told them—left unfinished. Mr. Whall's splendid paper he wished merely to supplement by saying that beauty and technique, though things to be desired, should not be pursued for themselves directly, remembering the

parable of the man who hugged his own soul to save and develop it, and found, in the after-world, that he had preserved, as the result, the warrant of his own damnation—whereas the man who heedlessly spent his soul in eager service of the cause of humanity, found it again, waiting for him, and rejoined it for evermore, in Paradise.

Mr. H. H. Statham remarked that Mr. Ricardo had partly led up to the point which he wanted to bring forward. In the paper, with which he entirely agreed in sentiment, though not always in opinion, there had been rather too exclusive a view taken of painting as a decorative adjunct to architecture. Whenever they used painting as a decorative adjunct to architecture they must architecturalise it, not only in line, but even in subject and expression. They could not have too great realism or vivacity in a fresco which was to form part of the architectural decoration; but he did not agree with Mr. Whall that the cabinet picture was dead. It seemed to him there was something to be expressed in painting which they could put into a cabinet picture, but which they could not so well paint as an architectural decoration, and what he wished to urge was that there were two sorts of fallacies about the objects of painting. There was the Philistine fallacy, and the artistic fallacy. The one idea was that a picture was only to tell them a story—most people only wanted to know what a picture was about—and the other, that the only object of a picture was decorative beauty. The latter, in its way, was almost as false as the former, and one result of it was that painters were losing the power of indicating character in the way they had formerly done. He wished to draw a contrast. A few years ago he noticed a picture at the Burlington House Loan Exhibition by a "deceased master of the British school," Newton; he was not a very great artist; he no doubt painted some very weak pictures. This, however, was an entirely successful picture; it was an illustration of a scene from the "Vicar of Wakefield," the return of Olivia to her parents, and it was so carefully studied from the story that no names in the catalogue were required for a moment. They could see the Vicar, the little children, and other characters perfectly made out. Then a good while ago there was an exhibition in Bond-street of pictures by an eminent artist, who had been knighted—pictures illustrating Scott and his country, the "Waverley Novels." One of the first things he saw there was "Miss Julia Mannering." This was a picture of a very Scotch girl, with very red hair and high cheek-bones. The fact was that Julia Mannering was a distinctly English girl, and was described by Scott as having piercing dark eyes and jet-black hair, and aquiline features. The painter could never have looked at the work which he professed to illustrate, being quite satisfied with producing a study of a woman, and giving it the requisite name. They would even find that Sir E. Burne-Jones, who was a great decorative artist, and, no doubt, something more, often fell short in the intellectual conception of his subject. Take, for instance, "The Days of Creation." That was one of the most beautiful decorative pictures—the drawing and colouring were beautiful—but as a conception or symbolic representation of anything so great as the creation, he (the speaker) called it a thing for a child's Sunday picture-book. The same artist had illustrated the story of the "Sleeping Beauty," evidently taking Tennyson's reading. The very point of that poem was the contrast between the sleepiness of the palace and the joyous youth of the prince who came to break it,

> "A fairy Prince, with joyful eyes,
> And lighter-footed than the fox,"

but Burne-Jones' Prince was devoid of spirit; a melancholy personage. Then again, he had painted an illustration of Browning's "Love among the Ruins." The very point of that poem was the contrast between the intense vitality of the young lovers and mouldering ruins among which they met. The Burne-Jones lovers were as mouldering as the ruins—they were dead asleep; he had missed the whole point of the poem, though he had produced a beautiful decorative picture. That was what an artist was in danger of at the present day; when in the pursuit of pure beauty he lost what, after all, was a still higher function—that was, giving them an intellectual idea, either one sprung from the artist's brain, or else giving them a new and more vivid idea of some book or history, which we could only partly realise ourselves. That, he considered, was where our artists failed—all except Mr. Orchardson, who seemed to be the one man of the present day whose pictures were not only beautiful as works of art, but were also what Matthew Arnold said poetry ought to be: "a criticism of life." They were pictures which represented some of the pathos and character of human life, and not merely beautiful pictures without any expression at all. In reference to the contrast which Mr. Whall had drawn between Albert Moore and Pettie* he (the speaker) was a great admirer of Albert Moore up to a certain point, but the impression left after looking at a number of his pictures was certainly that they were pictures, very beautiful in colour and design, of people with no human character whatever. The faces were beautiful but they had no expression, and surely expression and character were the highest objects of painting, and that, he thought, was where the decorative theory might come short. The cabinet picture, in which they were entirely free from any necessity of considering the surroundings, ought to have something of the interest of human life in it; and that really went higher than merely decorative work; while in a decorative painting on a wall, which was to form more or less part of the architecture, beauty of line was the first thing to be considered, and human character must be kept a little in the background, as it were, in order to give the work the repose necessary to harmonise with the architecture. Both were equally valuable in their way; why run down the one merely because it was not the other?

Mr. E. S. Prior considered that in the remarks of the previous speakers there was a film of doubt cast over Mr. Whall's propositions, which was largely due to their interpretation of the word "beauty." Mr. Whall had certainly given them a great treat, and his paper was one for reflection rather than for discussion in that room. He gathered from the writer's definition of the art of painting that its sphere lay in the noblest emotions and not in the intellect; that a work appealing to the intellect would be something fascinating at the moment, something transitory; but to be a permanent work of art it was necessary to appeal to the noblest emotions—he would even say moral emotions, because the noblest emotions were connected with their moral nature. In this he quite agreed with Mr. Whall. He was particularly pleased with the suggestion that painting might be put on such a reasonable and broad basis as being a handicraft applied to the purpose of beauty, and this made him think whether they could not say architecture was an art on the same lines. It was a handicraftsmanship of design, which it was in them to employ for the creation of beauty. The claim of architecture to be an art was sometimes based on its being the mother of the arts; but if that was so, she had turned off many of her younger children and left them to starve, while the elder children had broken loose and got into bad company, and only spoke of the mother to slang her. He did not think in the present day architecture could claim to be an art as the mother of the arts, nor could he think with Mr. Whall that architecture was an art because it could act as a drill-sergeant to what he (Mr. Whall) called the accessory arts. That gentleman seemed to infer that a student, by spending a fortnight at the anvil, would acquire command of that craftsmanship. Architecture was an art because it had a craftsmanship of its own which was employed in the service of beauty. What was the craftsmanship of the architect? It seemed to him there were realists and idealists in architecture, as well as in painting, the idealist being called an art architect, and the realist a practical man. The craftsmanship of the idealist consisted in his skill in the styles; that of the practical man consisted in brains. Architecture seemed to him to be a creation unconditioned by either. It was sometimes said that architecture differed from painting and sculpture, because of a third thing, utility. But there was a third thing in painting. There were the canvas and paint. The means were made by the architect, and were just in the same position to his art as the canvas and paint were to the painter; they were what the art was founded on. In a word, architecture was a craftsmanship aiming at beauty in creation.

Mr. G. Fellowes Prynne seconded the vote of thanks to Mr. Whall for his admirable paper. Speaking as to the application of decoration to architecture, he said he could not help feeling that much of the shyness of the public in taking advice, either from the painter or the architect, in the decorative work in their churches and other buildings was because of the fearful failures that existed. These failures were attributable principally to the lack of knowledge in the architect as to comparative value of colours in the first place, and secondly to the want of sympathy of painters with real architectural decoration; he alluded to the craving to get an immense amount of colour, and to the want of knowledge of the way in which colours contrasted and harmonised with one another. This was a matter they could, with great advantage, study more in detail than they did. He fully agreed with Mr. Whall's suggestion that an architect should build up what he designed, just as painters tried to see all round their subjects thoroughly. Architects would derive considerable advantage if they did more in the way of modelling. The very fact of always designing with black lines upon glaring white paper was a bad training for the eyes for colour; he recommended the use of a blackboard and chalk, and sometimes tinted paper. In conclusion, the speaker expressed the opinion that the more they got into sympathy and touch with painters and painters with architects, the more likely were they to succeed in their work.

The vote of thanks was heartily accorded.

Replying upon the discussion, Mr. Whall said the additions made by Mr. Ricardo appeared a little antagonistic at first sight, but that perhaps was because of certain of his (the speaker's) views having been badly expressed. In fact, Mr. Ricardo's criticism, speaking generally, ran rather with what he was thinking than with what he had written. He did not, however, agree with the remark that Raphael's pictures were exhausting if they were looked at in a moment of perfect repose. In dwelling upon the question of technique, he was only speaking of it as a necessity in the case of an ideal perfection of painting. But he thought he made it perfectly clear that works of art, at any rate to himself, might have a very great charm which still failed in rising to that standard. If they talked of painting they must ask themselves what was the essence of the art. It might tell a story, but that was not the first thing; it might raise the emotions, but that was not the first thing—it should be a painting. He would call the pictures to which Mr. Ricardo referred, bracing rather than exhausting. They aroused a certain amount of thought, which might be exhausting, but thinking on high things was bracing, if they were not already exhausted by going round the Vatican in one day. He quite agreed with Mr. Statham's remark about repose. All paintings in association with architecture should have that quality, and that was why he said that the cabinet pictures of the present day did not fulfil architectural requirements; they were so destitute of repose, and went so much for excitement. Mr. Statham said that a cabinet picture was one thing, and architectural decoration another, and that they both had their *raison d'être*. Perhaps so, but when one was speaking of painting in relation to architecture, he considered it from that point of view only; and if it were to be in a house that he lived in it must have that quality of repose. Even if the subject were in itself exciting, it must be so modified in treatment that it should not always jar him to look at it. Mr. Pryor seemed to think his (the speaker's) idea was that if an architect spent a fortnight at the anvil it would make him a sort of drilling-master, to bring all the arts into line. What he said was that it would give him sympathy with the crafts which the architect directed. It was because of a want of sympathy with the crafts that architects so often misdirected them. The more they had of that sympathy the better, and he did not think it would increase the feeling that they were generally ordering people; on the contrary, he thought it would modify it.

The proceedings then terminated.

ARCHITECTURAL ASSOCIATION—DISCUSSION SECTION.—The eleventh meeting of this section was held at the rooms of the Association on the 1st inst., Mr. W. Henry White in the Chair. A paper was read by Mr. John Begg, A.R.I.B.A., on "The Client's Point of View." The discussion was opened by Mr. J. Douglas Scott, and continued by Messrs. Satchell, Max Clarke, Brodie, and Stockdale. Mr. Paul Waterhouse, M.A., the special Visitor, summed up the discussion, and hearty votes of thanks having been passed to the author and to the special Visitor, the proceedings terminated.

NINETEENTH CENTURY ART SOCIETY.—Wednesday, May 8, has been appointed for the reception of works of art intended for the Summer Exhibition (the thirty-fourth) of this Society, at the Conduit-street Galleries.

---

* This refers to a point in the latter portion of Mr. Whall's paper, which we have not been able to find space for this week.—ED.

PAINTING AND ITS RELATION TO ARCHITECTURE.*

AFTER recapitulating the substance of what he had said in a previous paper read at the Association, Mr. Whall proceeded to consider the subject from his present point of view, as follows :—

The question of the relation of painting to architecture is the question of the relation of all the other arts to architecture; not only those which have been, somewhat foolishly, singled out as "fine" arts, but all arts; and therefore, remembering our definition of art, all crafts, however humble, which set before themselves the pursuit of beauty. I think, perhaps, it will be useful before turning our attention to so complicated a thing as painting to spend a few minutes in looking at the question in a much simpler form by considering one of the lesser crafts over which architecture extends its direction.

Take metal-work, or, not to throw so wide a net, take iron-work; and consider how completely the virtue, proper to each of its two great processes, governs the design and decides its relation to architecture, both as to pattern and place. Do you think that an architect who, as part of his training, had spent a fortnight at the anvil and another at the modelling bench would ever after misapply iron, use cast for wrought, or wrought for cast? What achievements then we might have if he, with this technical knowledge himself, was able to look round him upon a band of craftsmen, each a specialist and each an enthusiast in his own craft; and mind you, gentlemen, these two things depend on each other to a great extent; it is your technical knowledge as much as anything else, that will produce these enthusiasts, for it will bring you into touch with the craftsmen and give you and them that most vital strength which comes of sympathy. That "fortnight at the anvil," besides the training that it would give to you, would (and this would be its chief value) be a hand of comradeship held out to every hammerman in the country, and his craft would become, in the sense of fitness and sympathy, more architectural, in proportion as your architecture became more craftsmanly.

Nor would this be all, for I feel certain that, whatever craft you selected to learn as a specialty, it would not only give you the mastery which I am describing with regard to itself, but would give you, much more than you can imagine unless you have tried it, the key to the question as regards all the rest.

We have now come face to face with our special subject for this evening. For the intelligent, right, and perfect use of material being at the root of all true schools and styles of art, and each craft only attaining its proper dignity and perfection by being thoroughly itself, it naturally falls to us now to examine the art of painting in the light of these reflections, and consider what are its peculiar technicalities, attributes, and virtues.

A very large and very difficult subject, gentlemen, at any time, and one of which a single lecture can give but the barest and the baldest outline. How much more so in these days, when we are told by the President of the Royal Academy (in his speech at a recent Academy banquet) how deeply we must be struck with "the vehement and almost feverish strife of conflicting theories and opinions which is rife about us!"—a description not overcharged.

I hope you go to picture galleries. I hope you go often. You will soon have them thrown open to you in lavish abundance, and I will speak my few words now with the view of your being able to use them as a sort of guide which may give you some small help in steering your course amongst the conflicting schools and systems.

First, then, let me make to you the probably disillusioning announcement of my firm conviction that the one great peculiar characteristic virtue pertaining to the art of painting is the deft and exquisite laying on of paint! Small, simple, half-contemptible as this may seem, it is the only key to the study of the art of painting; and I want to direct your keenest attention towards it in order that you may be able to search for this quality in pictures, and know it when you find it. I cannot recommend you to begin your search for it in the exhibitions of to-day, but go to the National Gallery and look carefully at the drapery in Veronese's St. Helena, and try to realise the felicity of Ruskin's description of the painting of Veronese. I cannot find the quotation, but he describes it as consisting of touch after touch laid on with a balanced, trained, and instantaneous skill similar to that of his finest fencing.

Look for yourselves and see the light come rippling down the edges of the folds, not in clumsy zig-zags, but in touches sensitively modelled from end to end, so that no two points of them are alike—and yet put there by a hand working at lightning speed, but with the same control with which the most perfect violinist pours out the cascade of his melody. Just look at the shape of each of the little touches of high light with which some sheen upon the silk dies away. Each is like the petal of a flower. Look at the shadows, liquid and deep: *like* shadow—you can look down into them as you look down into those of running water—the same transparency—yet mystery. See how the colours have been floated over one another in thin films with the most absolute knowledge of what effect the colour below will have, seen through those veils, how each will operate upon each; and you will soon begin to recognise that this is an *infinite* science: that such a painter, like a great composer in music, out of the infinite numbers possible to him, fuses together by the flashing instinct of his genius in one vivid moment those which will make the harmony at which he aims. Do you think me too enthusiastic? That such a trivial thing as laying on moist pigment with a hog-hair brush does not call for all this warmth? Well, let me justify it by a contrast. Walk away from the Veronese and look at the painting in one of Landseer's pictures—and I purposely choose as example the cleverest work I can find, to point out to you the difference between cleverness and genius.

With your eye full of the sweet tremulous iridescence of the St. Helena, where you cannot put a pin's point upon two bits of colour exactly alike (any more than you could upon the same thing in nature), look at the Landseer; a mass of opaque splashes, where you can tell to a hair's breadth where a square inch of yellow ochre leaves off and one of Roman ochre begins. Look at the high lights, like chalk marks, and the "high darks," like ink marks, and if you think that at any rate the hide of the dog is a triumph of skill, just go and look how Holbein paints fur in his picture of the Ambassadors, or in the portrait of Christina of Sweden, Duchess of Milan. Then take another look at the Veronese, and then go back to the Landseer—you will feel as if, after watching some graceful and skilful dancer, the rustling of silks and the sound of music, you had suddenly presented to you the vision of some country clown plodding in miry ways.

Those of you who may happen to have seen in any exhibition any of my own poor efforts in art will be surprised to hear me insist so strongly on this purely technical skill. I do not undervalue high ideal, exalted thought, fine allegory, poetic intention, religious fervour—rather, perhaps, by nature I am tempted to lean on them too much; but it is my duty to tell you the truth, which came neither quickly nor easily to myself, but which is all the more sure for its having been slow, that all these things, all these fair thoughts and aspirations and ideals, good as they are in themselves, are only of the nature of good intentions (and we know where *they* go) until they have shaped themselves into deeds worthy of them by fine craftsmanship. A work of art which appeals from manifest technical shortcomings to the lamely-expressed goodness of its purpose damages more than aught else can do the cause it pretends to advocate. Really earnest workers in the same arts who are in search of example and strengthening will submit it to stern testing and questioning, will find it a broken reed and throw it aside, and without pretending to any inspiration from like motives, will outdo it themselves, and pass it by until the world itself will at last discredit it, and the final impatient comment on it will be "Yes, yes, yes, we know what you want to say, but show us what you can do!"

The warning of these dangers, then, is needed—and especially by you; for the kind of painting which architecture draws into fellowship and co-operation with itself is (much to the honour of architecture) almost always of that kind which starts with high motives and deals with high themes. It is for this reason that I have been at such pains to point out to you the special technical and craftsmanly virtues of fine painting. I have brought these things, therefore, into sharp relief and contrasted them with those more mental and contemplative qualities which form so constantly the motive, and the expression of which is so often an ingredient in a work of painting.

But though I have brought them into contrast to show that they are two entirely different things and to show you their respective values and places, do not run away with the idea that they are therefore incongruous qualities which in any sense exclude each other or between which there is in the nature of things any inevitable jealousy or contradiction. Thank heaven that is not so. It is theoretically possible, no doubt, that these things should exist in entire separation, and that the art of a Veronese (retaining all its splendour) should spend itself on mean and trivial things. But if you spend a half-hour in the Dutch room at the National Gallery, and then walk into the Venetian room, you will not only feel that you are in the presence of a totally different and immeasurably higher skill of the human hand, but that the same transition has lifted you also into an incomparably more lofty mental atmosphere, and that you are in the presence of a much finer manifestation of the human soul.

Now it would be impossible for me, even if I were a fine painter, to give you a demonstration of the qualities I have been speaking of in a short lecture, and by artificial light. But there are certain things which I can show you by way of illustrating the resources of painting.

Here are a series of tints—I am afraid you cannot see them to much purpose by this light, but at any rate you can see that there is a good deal of variety between them—that this one, for instance, might be called purple, and this orange; yet they are only the results of two different ways of using exactly the same pigments. You would think, if you know little of colours, that a colour diluted would always be a fainter version of itself, that a colour strengthened would always be a stronger version of itself, and that, indeed, is the rule in colours modified by mixture. But in fine painting colours are modified quite as much by superposition as by mixing; and that is the process I have here employed in its two great forms, glazing and scumbling. Glazing you will easily understand as the superposition of transparent colour—it is at the root of all Venetian excellence and brilliancy. Scumbling is an unfortunate word, which always sounds like a bit of artistic slang, and has therefore time out of mind been used in trivial literature as the cognomen for a typical painter—"Mr. Scumble, R.A."—yet it is a fine process, though the word is awkward, and he who knows how to use it is so far forth a painter in contradistinction to the man whose whole method of procedure consists, as in innumerable instances too modern to be quoted it *does* consist, in the mere mixing of colour together.

These, then, are all examples of the effects to be obtained by the varied handling of one colour (a very modest one, Burnt umber) and white. This, which I have ventured to call purple, is white thinly scumbled over a dark space of Burnt umber. This which I have called orange is the exact reverse, Burnt umber thinly glazed over pure white. Those between are varieties of the same process in the degree of the thickness and darkness of the two colours used, and you must at once recognise the fact that, seeing that any one degree of the white can be modified with the whole gamut of the umber, and any one degree of the umber by the whole gamut of the white, you are in the presence of a problem which is practically infinite—and when we consider this extended to the use of a full palette of pigments, we can understand that the choice of harmonies is as inexhaustible as in the case of music, and that a true colourist in the mere manipulation of his materials exercises the same kind of regal command over infinity as the composer of a fine sonata.

Having shown you how much can be done with simple means, I wish to insist upon the vital importance of working with simple means until their limits are reached. It is a very good thing to have perfect tools to work with, but you don't need me to tell you that a man who can't do anything without extensive paraphernalia can't do anything at all. This dependence upon lavish means is, however, such a pestilent disease in all the arts of the present day that I shall spend a few minutes in emphasising the value of their simplicity. And I cannot do so better than by trying to illustrate my point by reference to your own art. I am sure you will approve me when I make the reflection that a man who cannot build anything presentable in brick will not mend his case by falling back upon marble. On the contrary, while in the former his dulness, being unassuming, may escape censure, the presumption implied in his dealing with a noble thing will most justly call it down upon him. It is a characteristic of all great art that it exhausts the means used, and the more elaborate these are the greater the difficulty of the problem. Now nothing depends so little upon elaborate means

* Being a paper read by Mr. C. W. Whall at the last meeting of the Architectural Association, as elsewhere reported.

as fine painting. Give a painter who knows his craft half-a-dozen brushes and half-a-dozen colours and the whole world is his own; while every fresh pigment added to the palette is a fresh danger and chance of failure. I remember some years ago in one of our exhibitions a case showing the development of a coloured illustration in either the *Illustrated News* or *Graphic* in all its stages, there being, if I recollect right, fifteen or sixteen coloured stones employed. The drawing was a dashing, clever thing enough. It was called "United Service," and represented two handsome young fellows, in the dress, respectively, of the Army and Navy, escorting down the stair from the ball-room a young lady in white. The first few printings which showed the tints of the flesh, and the delicate pencil-like marks of the shading had positively an air of great refinement. One thought the Caton Woodville or the Overend half-way towards being a Whistler, a "a song in stone." The warm tones were printed first, and there were some delicate saffrons (azaleas and so forth on the stair), working up through the white to flesh colour. So far all went well, and though none of the printings after the first four or five did anything but harm, still the thing remained in a kind of key, and even the red of the soldier's coat, vulgar as it made the print look, did not render it positively unbearable; *that* was reserved for the blue-black of the naval uniform, which came crashing down upon the thing like a brass band out of tune, and sent one away saddened to look at the next inanity in the catalogue.

Now this contained a great lesson, and a most important one for you, gentlemen; for that simple palette which I have been advocating brings as its natural result work painted *in a key*. Look at much of Burne-Jones's work—those cartoons which he paints in brown and steely-blue—at his pictures, too, in the same tones of the "Annunciation," "The Fortune," "The Merlin," and the series of the story of Perseus, and tell me if they are not noble colour. And in a more delicate and dainty key look at Whistler, with his nocturnes of blue and silver, grey and gold, or what not, and (if he has not shaken the dust of this ungrateful country from his feet for good) go next time he holds an exhibition and (and this will be coming near home to you indeed) see how he decks his room—working up from the white of his woodwork through the pale fawn or lilac of the mattings and distemper, the cool, neutral metal of the picture-frames, which are neither silver nor gold, to perhaps some warm russet in the upholstery, and a sudden blaze of gold and crimson on a glowing screen.

There is nothing I should think more necessary for you architects to bear in mind in using painting in conjunction with your buildings than this question of working in a given key, and I purposely directed your attention at the outset to that particular picture of Veronese, because it is so beautiful an example of it. And that, curiously, because it is an unfinished picture. That lovely over-robe of Venetian red was doubtless meant to be glazed with luscious crimson, and I must not refrain from the temerity of recording my opinion that it is better without it, that even the great Venetians were mortal and sometimes revelled in the wealth of their means and splendour of their powers with a luxury too unrestrained. Certain I am that Tintoret for this reason comes to me with a deeper appeal than even Veronese, and that of the latter his unfinished pictures, this St. Helen and the Annunciation in the Accademia at (is it Florence or Venice?—the angel has red drapery like that of the St. Helen) and the noble pictures in the Ducal Palace, at Venice, where he keeps to a key of white and gold, are to me his finest work. And whatever question there may be about that, I think there can be none of the fact that in nine cases out of ten they would serve the purposes of architecture better than those which look like a parterre of flowers. So remember, gentlemen (no doubt you will find it quite easy), next time some patron introduces you to his favourite R.A. to decorate the mansion or the church that you have built, tell him what keys of colour will harmonise with your intention, and what pigments he may use; remind him that you are the master of the situation, and that he must do as he is told. You will get some valuable or, at any rate, emphatic information on the relationship between painting and architecture, with a good stout hook to hang it on.

I have now said all I can to direct your attention to what I will call the proper *speciality* of painting as a craft—that which belongs to it and to nothing else. I believe that it is the most necessary thing for you to know in starting your study of painting, and all the more so on account of that which I have alluded to as so encouraging a fact in the present day—that the arts are seeking to found themselves on the fine forms of craftsmanship proper to each, rather than on academic theories and vague forms of dreaming.

The tendency of the arts at present, then, is to specialise themselves; but is their tendency also, then, on that account, to *isolate* themselves? One would fear it might be, and, perhaps, a search through the world of modern art would afford us some ground for supposing that it is. But I am certain that that would be as nothing to the arguments, growing daily stronger and stronger, for the opposite conviction, which has been cheering the heart of every craftsman and art-worker in the kingdom during the last few years with ever-growing appeal; a conviction that, in the searching after the special and individual excellencies of each craft, is being, in reality, rapidly discovered the proper ground on which they can all unite. You, gentlemen, by your study of the noble art which you have chosen to be your life's work, are preparing to stand in the place where, by the nature of things, all these various arts, which are so rapidly coming together, must meet. It will be your safest guide, I believe, in that perilous and responsible position, to remember that they meet there in virtue of their common motive—beauty; and that their common passport to that enchanted ground is craftsmanship.

This age has been too much swamped and stifled by academic methods of study, and it is certain that for a long time yet much instruction must be given in this way (what, indeed, am I doing at this moment?).

Yet, side by side with your lectures and treatises, take every chance that offers of learning at the bench or on the scaffold, at the anvil or at the easel. Where you see work going on ask technical questions, which will do good to him you ask as well as to you, and take every opportunity of getting at the actual tools and the actual stuff.

And now that I have tried to give you a general clue to the subject by establishing some first principle, let us turn our eyes upon the field of modern effort in painting, and try to find our way. And none too soon, for, gentlemen, you probably know—if not, I am happy to tell you—that cabinet pictures are a drug in the market, and you will very soon have all the jarring schools clamouring round *you* for employment! Indeed, if I live for another twenty years, I shall not be surprised to see—I shall expect to see—and, need I add, I shall most thankfully rejoice to see—architecture the acknowledged leader, ruler, and guide of all the arts in this country.*

THE ARCHITECTURAL ASSOCIATION SPRING VISITS:

ST. OLAVE'S GRAMMAR SCHOOL, SOUTHWARK.

THE seventh and concluding spring visit was paid on Saturday last to the St. Olave's Grammar School, Southwark,† when a large number of members assembled. The party were met by the architect of the building, Mr. E. W. Mountford, President of the Architectural Association, and were shown over the building by him. The buildings, to some extent, replace three schools which have successively occupied portions of the site. The later school-buildings were only intended to be altered by the Governors, but the Charity Commissioners insisting on an entirely new scheme the present building for 300 students was erected.

The general scheme consists of a large central hall, the whole height of the building, with class-rooms ranged around two stories in height. The caretaker is placed on the third floor. The head-master and assistant-masters do not live in the school-buildings. The building has no passages, the class-rooms opening-direct off the school-room on the ground floor, and onto a gallery supported on cantilevers projecting into the hall on the first floor level.

The central hall, or school-hall, is 80 ft. by 40 ft. and 44 ft. high to the top of the wooden barrel-vault. The lower part is panelled in deal, stained and varnished with dull varnish, and so treated as to make it similar in appearance to old deal untouched. Above this, and representing the first floor, projects the balcony, which acts as a means of communication to the first-floor class-rooms. This is carried on wooden cantilevers and furnished with turned wooden balusters. The main roof to the hall is very successfully treated. It is essentially of king-post type, but with the tie-beam resting on hammer-beams. Above the roof is framed out to a semi-circular barrel-form, in the circular soffit of which are introduced dormer windows, which serve for light and ventilation.

The interior of the roof is lined with stained deal, dull varnished. The tie-beams are carried across and emphasised with mouldings and carving, being supported by the turned king-post. The dual desks and other school fittings have been supplied by the North of England School Furniture Co., Limited.

The Governors' Room was much admired. It is lined with the oak panelling from the old buildings made up with new. The ceiling is richly treated with plaster ribs, carving, and supporting figures above the cornice of the room. This work has been executed by Mr. Gilbert Seale, of Camberwell. The stone mantel piece is in Monk's Park stone, and is a successful, yet simple, piece of Mr. Mountford's work. The sculpture work to this has been executed by Mr. Paul Montford, Royal Academy Gold Medallist in Sculpture. The electroliers to this room have been designed by the architect, and executed by Messrs. Singer, of Stroud; who also executed the more elaborate, but scarcely so successful electroliers which hang from the roof of the main hall.

The head-master's room on the first-floor is lined with Oregon pine, stained cherry-colour and dull varnished.

The chemical laboratories on the third-floor in the roof, have been fitted up in detail from the architect's designs; the fittings are in Bass wood with glass tops to the shelves, the tops of the benches being of teak. The walls in these rooms are of Portland cement, from 5 ft. in height, the remainder being in ordinary plaster. The construction of the floors is fireproof throughout, being composed of steel joists and coke-breeze concrete in the proportion of one of Portland cement to five of coke-breeze, and are 7 in. thick. The steps to the first-floor are in York stone. The heating is effected by means of Berry radiators, supplied with water on the low-pressure system, cold air being introduced over these direct from the outer air beneath the windows.

The exterior is executed in Laurence's bricks and Portland-stone, and the roofs are covered with green Westmoreland slates. Although not the largest of the architect's works, it is certainly one of the most successful. The simplicity of general treatment, the careful balance of part to part, and the general sense of proportion throughout the whole work, were the points which the members were mostly impressed with.

The cost of the building will be about 28,000*l*. Mr. Peacock has acted as clerk of the works. The members were afterwards entertained at tea, after which Mr. Banister F. Fletcher, Hon. Sec., proposed a vote of thanks to Mr. Mountford for his kindness, remarking how fortunate it was that their last spring visit should be to a building so worthy of their study. Mr. Mountford replied, and remarked on the pleasure he had had in conducting the members over his building.

* The conclusion will be given in our next.

† See the *Builder*, June 9, 1893.

ARCHÆOLOGICAL SOCIETIES.

NEWCASTLE SOCIETY OF ANTIQUARIES.—The monthly meeting of the Society of Antiquaries of Newcastle-on-Tyne was held on the 24th ult. in the Castle, under the presidency of Mr. H. A. Adamson. The Council recommended that there should be three day meetings of the Society during the year, the centres on each day to be Bishop Auckland, Haltwhistle, and Wooler. Half-day meetings on Saturday afternoons were recommended to take place at Finchale, the Newcastle Churches, the walls of Newcastle, and Houghton-le-Spring. Mr. Clephan had also invited the members to Low Fell to see his Egyptian collection. The Council recommended that next year there should be another pilgrimage to the Roman Wall in conjunction with the Cumberland Society. The recommendations of the Council were adopted, with the addition of another day's meeting to Holy Island during the year. Mr. Holmes, the treasurer, presented to the Society a plan of Æsica, showing the excavations which had taken place during the past year, and the chairman presented a Corinthian capital from Ascalon in Syria. Both presents were accepted with thanks. The Rev. H. C. Savage, Vicar of St. Hilda's, South Shields, read a paper on "Easington Church." Mr. George Reavell, jun., read some notes of discoveries at Hulne Abbey, Alnwick. The chief point mentioned was that during some alterations in the keeper's house, and on taking down the old chimney-breasts, an arch was discovered with two peculiar hagioscopes at the side of the archway.

Illustrations.

APSE WINDOWS, GRACE CHURCH, UTICA.

THE illustration shows the windows designed by Mr. Henry Holiday for a church in the United States. In regard to the general idea and scheme of the design, Mr. Holiday writes:—

"The subject suggested to me for the chancel windows of Grace Church, Utica, was "Praise," to be expressed by a series of celestial figures in the upper part of the windows and terrestrial in the lower part: these latter to be persons noted for their hymns of praise—David, Deborah, the Virgin Mary, &c. As there are seven windows, it occurred to me that it would enrich the subject to include the idea of Creation, and with this view I have occupied the seven quatrefoils with the Six Days of Creation, and the Day of Rest, while six of the square panels illustrate the hymn, 'Oh! all ye works of the Lord, bless ye the Lord'; the seventh representing the Saints' Rest in Paradise. Each of these panels has special reference to the day of Creation illustrating the same light.

This design was made some years ago, though only recently executed, and in the meantime, when asked to design a Creation window for the west end of St. Saviour's, Southwark, I showed this design to the committee, who approved of its being adapted to their three-light window, in which the composition is necessarily quite different, though many of the features are identical.

With this clue to the scheme, I fancy your reproduction will explain itself."

RADLEY COLLEGE CHAPEL.

THE new chapel now being built at Radley College by Mr. T. G. Jackson, A.R.A., stands slightly to the south of the old chapel, and communicates with the rest of the College by a new cloister and dormitory above. The old chapel was a building of temporary construction, but contained some handsome oak stalls and panelling, and a very fine old German reredos which are being removed and fitted with some adaptation to the new building.

The new chapel is 32 ft. wide by 130 ft. long (including an antechapel under the organ-loft) and 40 ft. high to the plate. The walls are of red brick inside and out, with dressings of hard Doulting and Weldon stone, and the roof and ceiling will be of oak.

The builder is Mr. Estcourt, of Gloucester, and Mr. Long is clerk of works. The heating is by Messrs. Haden, of Trowbridge.

It is proposed to proceed at once with the new dining-hall and other buildings on the completion of the chapel, which is to be opened on St. Peter's Day, June 29.

BOLTON ABBEY.*

THE view of Bolton Abbey is taken from the north-west of the church, showing in the foreground the west tower, which was commenced by the last Prior, Moone, in the early part of the fifteenth century, but was never completed. Beyond is seen the end of the north aisle, the only aisle, and the remains of the north transept.

Bolton Priory (as it is more properly called), was a priory of the Austin Canons, at first founded at Embsay, 1120, and afterwards transferred to Bolton, where the buildings were commenced in 1151 in the style of Transitional Norman, of which erection a considerable portion of the choir, and parts of the south transept, and nave still remain, the chief portion of the nave having been rebuilt in the Early English style, and the east end of the choir, subsequently, in the "Decorated" period.

The following remarks on the special points in regard to the plan and architectural treatment are taken from the excellent paper read on the subject by Mr. J. T. Micklethwaite, on the occasion of a visit to Bolton by the Yorkshire Archæological and Topographical Society; a paper which still remains the best analysis of the building.

"The church of a house of canons has peculiarities which differ altogether from those which we find in the churches of any of the monastic orders. One of the commonest, and at first sight most unaccountable, of these is that the nave has only one aisle, as we find it here and at Easby, at Kirkham, at Brinkbourn, at Lanercost, at Hexham, at Dorchester, at Boxgrove, and at many other places. Most of these churches are buildings of considerable architectural pretension, in which the absence of south aisle—for it is generally the south that is wanting—appears as a great defect, and people generally put it down as an exhibition of that caprice which is supposed to have animated the Mediæval builders. Now, as I am one of those who hold that Mediæval English builders were not, as a rule, capricious, I wish to show that this one-aisled plan came perfectly naturally, and was the legitimate consequence of the conditions under which the work was executed.

The monastic and collegiate church plans, though in late times they often became very much alike, have quite distinct origins. The ordinary monastic church from the earliest time was a large cruciform building, with aisles, and this so far satisfied later ideas of magnificence that we often find that throughout all subsequent rebuildings the Norman plan was retained unaltered, except by the addition of a few chapels about the east end. Westminster, Gloucester, and Winchester are examples; whilst even in churches such as Canterbury, which have been considerably enlarged, the change has taken the form of extension rather than alteration of the original plan. The secular cathedrals seem early to have imitated the abbeys. But many other foundations of canons, whether regular or secular, are built on a quite different model—namely, the parish church. In fact, most canons' churches actually were parish churches, either before they were made collegiate or from their foundation, if they were absolutely new.

Now the original parish church plan differed from the monastic in that it was entirely without aisles. Our parish churches as first built were sometimes cruciform, and sometimes without transepts, but in either case aisleless; and if there was a tower it was in the centre of the building over the chancel, the sanctuary forming the eastern arm, and the transepts, if there were any, the north and south. The canons took the cruciform, which was the finer type of parish church before them, and glorified it by making it larger, so much so sometimes as to make it vie with the cathedrals in scale, but still keeping its characteristic want of aisles. Here at Bolton, for example, if you look for the remains of the original twelfth-century work you will find none in any part which cannot have belonged to an aisleless church, with chapels east of the transepts. If you look at the building you will find that as usual the work has begun with the choir, and worked gradually westward. The earliest part is the lower part of the side walls of the choir, which, though it was afterward lengthened, and almost wholly rebuilt, kept its aisleless form to the east. The early work here must date from about the time of the foundation. The great piers of the crossing show remains a little more advanced in style, and in the lower part of the south wall of the nave, which is all that remains there of the original work, we find the pointed arch and other characteristics of the Transitional period.

The church had not been long finished before the alterations began, as they did in nearly every other church of the same sort. The canons felt that their churches were inferior to those of the monks, and notwitstanding their length they were cramped for want of breadth. They craved for the addition of aisles, which were now becoming common, even in parish churches. But here the regular canons, and a good many of the seculars also, were met with a difficulty. Along one wall of the nave ran the cloister, and important buildings abutted against it towards its west end. To add an aisle on that side would have been expensive and very inconvenient; so they were content with one on the other side only, where the ground was free. Where there was no cloister, as at Ripon, two aisles were added; and the alteration was so general that Bayham, in Sussex, and Lilleshall, in Shropshire, are the only churches of any size which I remember to have kept their aisleless naves up to the time of the general suppression.

The aisle at Bolton was added, as the west front shows, early in the thirteenth-century—very few years after the church was finished. It has been somewhat altered in parts since, but on plan it remains the same. To compensate for the want of aisle on the south side, the wall was taken down as far as the roof of the cloister, and the existing range of five fine windows set up in its place. These windows were only carried for the length of the cloister, because further west a lofty range of building abutted upon the church. That part of the wall was therefore not taken down, and on the inside you may trace the difference between its masonry and that of the newer work.

In the fourteenth-century the choir and transepts were magnificently rebuilt almost from the foundations, and at the same time somewhat extended. The choir, even in its present condition, is one of the most beautiful architectural compositions in England.

The latest work at this church is especially interesting, because it shows us arrested half way a process which has been applied to half the parish churches in England, and which has entirely altered their external character. I said just now that when a church had a tower at its first building it was always in the centre. Whence comes it, then, that nine out of ten, as we now see them, are at the west end? The reason is that such towers are always additions. The greater number of parish churches were without towers at first. We may take the little church of Adel as an unaltered and typical example of what most others have grown from. But in later times, and chiefly in the fourteenth and fifteenth centuries, towers became fashionable, and it was a very poor parish which was without one in the sixteenth. These towers were built very slowly—sometimes, I believe, they were going on for the greater part of a century—and it was important to avoid disturbing the church and interfering with its continued use, as would have been done by breaking into it, especially in the middle. The new towers were therefore built on fresh ground outside the church, generally at the west end; and then, when the work was done, the west end of the nave was taken down and the building joined on to the tower. The same was also often done in churches which, like this one, had at first central towers, for, if for any reason the tower had to be rebuilt, it was easier to do it outside than inside the church. And this was the common case, for twelfth-century towers were much given to tumbling down, and the earlier ones had very heavy piers, which took up a great deal of room, and were likely to be condemned as obstructions during the progress of later improvements. Thus it has come about that in spite of the central position being the normal one in a parish church, it has been almost wholly superseded by the weste...

What became of the original central tower at Bolton is, I think, not known. Perhaps its fall may have caused the general rebuilding of choir and transepts in the fourteenth century; perhaps it may have been taken down at that time and not rebuilt; or perhaps it may have stood till the end, and only fallen when the whole eastern part of the church was allowed to go to ruin. I do not think the last is very likely; but, however, it may have been, it was thought fit in the sixteenth century to build another tower at the west end, and as the inscription tells us, it was begun in 1520. At the suppression, twenty years later, the work had only reached the height of the nave, and in that state it has come down to us. The thirteenth century west front is still standing, and close to it is the large arch of the tower, which, if the work had been allowed to go on a few years longer, would have opened into the nave.

The process, which is here so clearly displayed to us, may be traced in nearly every church with a western tower, except that in a few the nave itself has been rebuilt, either together with or after the tower.

Of the ancient furniture unfortunately, scarcely anything remains now. The canons, although, as we have seen, they took the general form of their church from that of a parish church, arranged it entirely in their own way. A parish church is all one, the nave and chancel being only different divisions of the same apartment. But the canons made it two. They wanted the choir for their own services, and so they fenced it off in a way which takes from it all ritual resemblance to the parish chancel. The choir was cut off from the nave by two solid screens, one in the eastern and one in the western arch of the central tower. The eastern screen, called in Latin *pulpitum*, and at Ripon, if not elsewhere, in English *purpytil*, had a broad gallery above it from which parts of the service were sung, and where the organ generally stood, as it continued to do in most of our cathedrals till quite lately. The western screen was the rood-screen—not a light wooden screen such as we are accustomed to associate with that name in parish churches, but a solid wall with an altar in the middle, and a pair of little doors, one at each end. This arrangement was also found in the monastic churches. The only instances I remember where the rood-screen of this form still exists are at St. Albans and at Boxgrove. I think it is also at Wymondham, but I am not sure.

* The series of the "Abbeys of Great Britain" is continued this month with illustrations of "Bolton." Particulars of this and of the three Cathedral series ("England and Wales," "Scotland," and "Ireland") will be found on p. xx.; also (on page i.) of the recent re-issue, in book form, of the series of English and Welsh Cathedrals.

This altar, which, from its position, generally had the name of the *Jesus Altar*, or the *Altar of St. Cross*, was for the use of the public, and when a church was partly parochial, this was the parish altar. Here at Bolton it stood exactly where the parish altar still stands, and in the south wall of the nave you will find the piscina which belonged to it; and near is a plain stone bench which served for what we now call the *sedilia*. The presence of this altar, and the public use of it, has saved the naves of several fine churches when the choirs have gone to ruin.

The screen at the west end of the nave contains some old fragments which, no doubt, at one time formed part of the enclosure of some of the chapels. There is a story that the screen at Skipton comes from here, but it is very unlikely. There is no place here that it would suit, and it looks very much as if it had been made for the church it is now in. In the south transept are the remains of two altars, and there is the slab of another lying in the tower. This last has a rectangular sinking in the middle which has been taken for the "sepulchre" or place for the reception of relics which were inclosed there under the small stone called the "seal" of the altar. But it is much too shallow for that use, and is probably no more than the matrix of a brass plate, which has been let into the stone at some time when it has been re-used to cover a grave.

The three panels over the Early English west door have been painted. The subject appears to have been our Lord seated, and with angels on either side. These are the only external Mediæval pictures I have seen in England, but there are traces of decorative painting outside the Lady Chapel at Ely.

Of the domestic buildings of the Priory little remains except foundations. Those surrounding the cloister are easily identified, because there is one arrangement of them, which is at least as old as the ninth century, and was followed by nearly all the orders.

The cloister here was small. It had the usual doors into the nave, and close to the eastern one is another into the south transept, which may serve to remind us how complete was the separation between the nave and the part of the church which the canons reserved for their own use. Next the end of the south transept is a passage leading to the Chapter House, which was a small octagonal building. The Dorter or dormitory ran south from the transept above the passage to the Chapter House and some other apartments, the most important of which was the common house. This, as well as the Dorter, was, I think, reached from the cloister by the door in the south-east corner. The Frater or hall took up the whole south side of the cloister. It was raised upon a basement, part of which formed passages, and the rest was no doubt a cellar for stores. Near the south-west corner of the cloister is a mass of masonry, which, I think, marks the foot of the stairs to the Frater. On the west side was a large building, the height of which you may see by the marks which remain where it joined the south wall of the church. This building was appropriated to the cellarer, who had charge of the general stores and of the lay servants of the house and the greater number of the guests, for which purposes he required a great deal of space both for warehouse and lodging room. This is the building which Mr. Sharpe called the *domus conversorum* in his Cistercian plan, and, laying aside the controversy about the name, he was right to a certain extent. But it was a good deal more than the house of the *conversi*, and where it remains in a reasonable state of preservation it is generally easy to trace the divisions.

Beyond the cloister there are considerable remains of buildings towards the south and east, but without further information than we possess we cannot identify them with certainty."

COMPETITIONS.

BOW AND STEPNEY FOUNDATION BOYS' SCHOOL.—The Governors of this Foundation are about to add to their present School Buildings a Science Department, and have selected, from a limited competition, the designs of Messrs. Thomas and Howard Chatfeild Clarke. The additions will include a Chemical Laboratory, with Preparation Room, a Lecture Theatre, Physical Laboratory, and Mechanical Instruction Room. The additions will form a complete wing in themselves to the present building, and the elevation to such new wing has been made to harmonize with the existing premises, which are situated in Tredegar-square, Bow.

THE ROYAL SOCIETY CONVERSAZIONE.

THE exhibits at the Soirée of the Royal Society on Wednesday last, were of more than usual interest. There was a comparative absence of noises in the various appliances, which tended to the better appreciation of the objects got together, and added to the general comfort of the evening.

Of course, argon was represented, and Professor Ramsay made a very interesting exhibit by showing its spectrum, as well as that of a mixture of argon and helion extracted from the newly-famed mineral cleveite. It will be remembered that prior to its discovery in association with argon, the other day, helion was not known to exist on the earth, although incandescent material giving the same lines in the spectrum had been proved to exist in the sun. This is a great triumph for the spectroscope; the element was named from its known occurrence in the sun, in the first place.

Electrical exhibits were fairly numerous, amongst the more interesting being specimens of the deposit or incrustation found on the insulators of the electric light mains at St. Pancras, together with insulators and wood bearers which were in use on these mains. Major Cardew stated that the deposit was found to have been caused by the passage of alkaline salts in solution to the negative main, the salts being chiefly derived from the neighbouring soil with which the end fibres of the wood bearers were in contact. Electrolysis of these salts took place with liberation of the metals at the negative main, the metals being oxidised and slowly carbonated in air. During this process nodules of the metal seem to have become embedded in the oxides, and preserved from oxidation. Thus it appears to be a tolerably easy matter to prevent this incrustation in future, and the chances of explosions due to the ignition of metallic sodium in presence of coal gas will therefore be minimised.

Professor Roberts-Austen's electrical furnace is capable of reducing metals, which until now, have proved too refractory to be satisfactorily melted. It is capable of dealing with chromium, titanium, platinum, and other metals having high melting points. The furnace consists of a fireclay case lined with magnesia, and containing a magnesia crucible. The carbon poles are horizontal, the arc being deflected by means of a magnet on to the material to be heated; the current employed is usually about 60 to 70 ampères at 100 volts. The professor mentioned that the temperature attained in the operation was about 3,000° Cent. A magnet, exhibiting the effects of currents in iron on its magnetization, was shown by Dr. Hopkinson; while Professor W. M. Hicks had an instrument for analysing primary and secondary volts and ampères simultaneously. An interesting display closely allied with the last-mentioned exhibit, was a synchronizing alternating current motor and contact maker, for the delineation of the form of alternating current and electromotive force curves, and a form of resistance of small inductance for use with the apparatus, which was explained by Professor J. A. Fleming. This motor enables the curves delineating the form of the waves of alternating current or pressure to be taken at any part of the circuit, and when the alternators are not accessible. A large collection of such curves were shown as taken at the Bankside station of the City of London Electric Lighting Company. Mr. R. E. Crompton sent some simple forms of platinum thermometers for use with a new form of potentiometer for ratio measurements, also exhibited. The experimental apparatus shows the small consumption of electrical energy required to maintain a small crucible at a constant high temperature, when radiation is prevented. A new instrument for testing the quality of iron in regard to magnetic hysteresis, of special use in testing sheet-iron for transformers and dynamo armatures was exhibited by Professor Ewing. It may be briefly described as follows:—A few strips of the iron to be tested are cut 3 in. in length. These are clamped in a carrier, which is then caused to revolve between the poles of a magnet. The latter is suspended on a knife edge, and becomes deflected in consequence of the work expended in overcoming the magnetic hysteresis of the sample; the amount of the deflection serves as a measure of the hysteresis. Mr. L. Pyke had an arrangement by which an increased efficiency in the reduction of the highly electro-positive metals from aqueous solutions is obtained; and Major Holden displayed some optical electric meters.

Perhaps the most noteworthy exhibit from our view was an instrument known as a circlograph, by the inventor, Mr. T. Clarkson. This is useful in drawing and measuring circular curves of any large radius without requiring the centre. In other words, it is possible therewith to arrive at the length of the radius of any large circle when only an arc of the circle is given. The construction of the instrument is based upon a knowledge of the fact that it is possible to cut a flat plate of steel into a certain form, which imparts to it the property of bending always into circular curves. The steel must of necessity be of uniform thickness and temper, and herein consisted the difficulty of employing it prior to the adoption of the method explained by the inventor. To cut the strip of steel from a larger piece by mechanical means would have created strain in the metal, which would have been fatal to its employment in this connexion. The plan resorted to was to etch the strip from the parent sheet by acid. Judging from a somewhat careful examination of the instrument we are inclined to the belief that it is capable of giving approximately accurate results, and no doubt, if it were made more delicately, with proper vernier and lens, it would be better still for drawing purposes. It is highly improbable that the steel strip, although subjected to continual bending and unbending, would materially suffer from "fatigue," and providing great care is exercised in the manufacture of the steel, so that its thickness is micrometrically exact, we see no reason why this cheap and useful instrument should not form part of the accessories of the drawing office. Its use in measuring curves is such as to save hours of labour.

The principal library was quite lighted up at intervals by the combustion of acetylene which bids fair to rival coal-gas and electricity as an illuminant. Professor V. B. Lewes in connexion with this exhibited a preparation of acetylene from calcic carbide, which carbide is formed by the action of carbon on lime at the temperature of the electric furnace. This is decomposed by water dropping upon it, with the evolution of acetylene. When consumed in suitable burners it develops an illuminating value of 240 candles per 5 cubic feet of the gas. The flame was intensely bright, but pleasant, and that it is comparatively cool may be judged from the circumstance that one could hold a hand over the flame at a distance of 5 in. to 6 in. without experiencing discomfort. Mr. R. Inwards showed some examples of curious joints in carpentry, made without compression or veneering, which might have been better understood if they had been accompanied by succinct verbal or written explanation. As it was, it was difficult to see in what way these joints differed from others we have examined from time to time.

The above comprise the exhibits of special interest to us, but many others dealing with the registration of temperature, natural history objects, &c., were included in the display.

INCORPORATED ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.

A LANCASHIRE and Cheshire District Meeting of the Association of Municipal and County Engineers was held in the Sir Ralph Pendlebury Memorial Hall, Stockport, on Saturday last. The members attending the meeting were received by the Mayor (Mr. F. R. Robinson), who presided during the first part of the proceedings. The members of the Association present included the President, Mr. A. M. Fowler, of Stockport; Messrs. T. de Courcy Meade, Manchester; J. Cartwright, Bury; J. T. Eayrs, West Bromwich; F. C. Wike, Sheffield; R. Godfrey, King's Norton; T. Brierley, Newton-in-Makerfield; W. W. S. Exote, Halifax; T. Mawbey, Leicester; S. S. Platt, Rochdale; Pickering, Nuneaton; Barber, Islington; Britton, Burnley; F. Baker, Middlesbro'; H. Yarwood, C. Sheard, Heaton Morris; F. Massie, Wakefield; A. Shirley, Eccles; A. Sutcliffe, Featherstone; W. Dunscombe, Chesterfield; F. Fenn, Toothill (Upper); S. Edmondson, Burnley Rural; W. Spinks, Leeds; J. Parker, Nottingham; Hooley, Manchester; J. A. Settle, Bolton; E. Sykes, Cheadle; W. H. Traver, Wavertree; W. H. Hopkinson, Keighley; H. Dearden, W. H. Smith, Carlisle; and others.

The Mayor offered the members of the Association a very hearty welcome to Stockport.

On the motion of Mr. Brierley (Newton-in-Makerfield), seconded by Mr. Platt (Rochdale), Mr. Button, of Burnley, was unanimously re-elected Hon. Sec. for the Lancashire and Cheshire district. Mr. Button suitably acknowledged his reappointment.

The President (Mr. A. M. Fowler) then delivered an address on the Stockport sewerage scheme. Having described the position of Stock-

port and the difficulties connected with the work of sewerage, Mr. Fowler said that, having regard to the pollution of the districts immediately above them, Stockport had ordered the new intercepting sewers and works to be designed so as to provide for the collection and disposal of the sewage of the immediate districts if found desirable or necessary. In designing the scheme many special conditions had to be provided for. The town was undulating in its character, rising rapidly from the river on each side, whilst the river itself might be described as a sluggish stream. The existing sewers converged into main sewers at eighteen different points into the river. All these were to be intercepted and connected by the new scheme. The main sewer had had to be laid along the lower part of the valley, nearly parallel with the river, terminating at land about 1¼ miles below the fringe of the town, and would vary in size from 7 ft. diameter to 18 in., having a total length of about 4½ miles. The Corporation had secured 95 acres of land of a character and site which was all that was to be desired. This land was a level which necessitated the pumping of the sewage to a height of some 17 ft. The expense of this being a continual cost, and seriously affecting the revenue account, it had been a matter of concern to mature the scheme so as to reduce the pumping to a minimum lift, securing also a velocity in the flow of sewage, in time of drought, of upwards of 2 ft. per second, to ensure cleansing. The gradients did not offer this provision with the ordinary-shaped sewer; but by narrowing the middle part of the invert the object thus sought had been obtained. The population extending on both sides of the river, the stream had had to be passed under in four places, and in two places, viz., at Brinksway bridge and Carrington bridge, inverted syphons had been resorted to, while at the other crossings special means had had to be adopted to prevent this by flattening the tubes so as to keep the gradients to an inclined plane, at the same time securing the full capacity of the sewer. From the precipitous nature of the land on each side of the river great volumes of rainwater were discharged through the existing sewers into the river, which he had no doubt in certain periods, as in thunderstorms, would discharge upwards of 50,000 gallons per minute. It was impossible to make provision for such storms, as this would dilute the ordinary flow of sewage during the active part of the day, above seventeen times the dry weather flow, it was, therefore, arranged to intercept at such periods the sewage and rain when it was diluted to eight times its bulk, or nine times the normal dry weather flow. To secure this provision special designs had been made to pass off the flood-water by means of weirs so regulated as to admit this amount through an opening at its approach to the weir into the sewer, and when the flood exceeded this quantity the whole would leap forward into the river. The main sewer at its invert would be lined with blue bricks, and at the sides with best chequer bricks. Ventilators would be placed at about every 100 yards apart, and shafts would be taken up the buildings well above the apex of the roof, and away from any windows or openings. All the brick sewers would be easy of access for inspection from end to end by the special arrangement of footway, and side entrances and manholes would be provided. The depth of the sewer below the surface varied from twenty feet, being principally through red sandstone rock. The outfall works were about fourteen miles distant from the town on its western side. About seventy acres of the land was moderately uniform in the surface, the remaining twenty-five acres being at a higher level of 36 ft.; the strata was principally gravel and sand to a depth of upwards of 20 ft. To utilise this land the sewage would be lifted by means of centrifugal pumps in duplicate to a height of about 17 ft. The sewage in its way through the pumping-house would be incorporated with a mixture of cream of lime and sulphate of alumina in such proportions as the density of sewage might necessitate to secure precipitation of the flocculent matter in tanks into which the sewage would be discharged, and allowed to flow either constantly or intermittently. The tanks would be eight in number, 76 ft. long and about 44 ft. wide at the top. The tanks were so constructed that the sewage could flow through the whole of them, or one, or any number, so as to have the full benefit when required of the whole reservoir space. The mud would be lifted from the well automatically by means of Shone's ejectors into the press-house of the building, where the same could be pressed into hard cake, so as to be in a portable form for quick removal. After the sewage had been treated by precipitation, the effluent would be passed over the land by means of one main carrier fitted with sluices, to be discharged into branch-surface carriers, discharged intermittedly into four or five acre plots. The ground would be underdrained, which would carry off the thus treated sewage into the main sewer again below the point where it had been pumped. To carry out the above arrangement it had been necessary to resort to the best possible known pumping machinery, and he had, therefore, adopted Messrs. J. & H. Gwynne's, Hammersmith, combined engines and centrifugal pumps at a cost of 4,725*l.* The plant comprised a pair of 27-in. invincible direct-acting centrifugal pumping engines, each able to deliver 13,500 gallons per minute against a maximum head of 19 ft. He thought it would be found when these machines were started that the Corporation would have one of the most economical sewage pumping installations in the United Kingdom. The engines would be each equal to 60 h.-p. The boilers were made by Mr. T. Oldham, of Stockport, and were of the Lancashire type, 30 ft. long by 8 ft. diameter, fitted with Green's economiser. The buildings were so laid out, that should any cheaper or better means be found of treating the sewage, they could be adopted to any process. Mr. Fowler next described the Mersey Mill bridge, which has recently been constructed by the Corporation. The work was the development of a great sanitary improvement, and an improved means of communication between the north and south sides of the borough. On the south side of the river an extensive rookery of dilapidated and insanitary property had been removed, and the ground had been filled up to the extent of 8 ft. to form approaches to the bridge on the south side, and 20 ft. on the opposite side of the river. The bridge was 80 ft. span, and 54 ft. between the main girders, built on the tubular lattice parallel girder principle. The whole of the structure proper was of mild steel, with planted mouldings of cast-iron to cover the top and bottom booms. The main girders have lateral diagonal bracing, 3 in. by ½ in., built to stiffen them. There are eighteen transverse girders, laid 5 ft. apart, surmounted with a boiler plate flooring three-eighths of an inch thick. These transverse girders are suspended to the under side of the main girders by steel one and one-eighth inch bolts at each end. Each bolt is calculated to withstand a safe load of 7 tons, or one-quarter of the breaking weight, so that the suspension-bolts to each transverse girder would carry 84 tons. The total cost of the bridge was 10,640*l.*, and the work was carried out conveniently, economically, and without accident.

Municipal Progress at Stockport.

Mr. John Atkinson, A.M. Inst.C.E., Borough Surveyor of Stockport, next delivered an address on "Municipal Progress at Stockport."—The first part of his address dealt with the history, the principal manufactures, and the geology of Stockport, after which a short account was given of the stables at Portwood Cattle Market, which were erected in 1891, and had cost 5,681*l.* 15s. 10d. On the subject of baths, Mr. Atkinson said that a small public swimming-bath and washhouse was built about 1857, but in 1884 the present buildings, consisting of plunge, slipper and Turkish baths, were erected. The old plunge-bath was adopted as part of the scheme, and is utilised as a "penny" boys' swimming-bath. As is the case elsewhere, the baths fail to pay. The average loss on the Stockport Institution is about 200*l.* yearly. The total cost of the buildings was about 10,400*l.*, and the architect was Mr. J. C. Prestwich, of Leigh, Lancashire. The Turkish baths comprise three hot rooms, shampooing and cooling rooms, the latter for smokers and non-smokers, with ten separate dressing-boxes. The Turkish baths are well patronised. The annual number of persons using all classes of baths average 80,000. The technical school at Stockport was transferred as a free gift to the Corporation on June 7, 1892, the total value of the premises and fittings being 16,874*l.* The Corporation have since built an additional wing—viz., large class and examination room, small class-room, master's room and museum, and have covered a portion of the yard, the value of the additions being nearly 3,000*l.* Mr. George Sedger, of London, was architect; and Messrs. T. & W. Meadows, Stockport, contractors. In dealing with isolation hospitals, Mr. Atkinson said that the Great Moor Hospital was erected in 1880. The building cost 4,635*l.*, and the site cost 1,346*l.* The site contains 3 acres and 1 rood. The building consists of north and south pavilions, and covered corridors at west side, with administrative block in centre. The old disinfecting stove being useless, it was decided in 1892 to erect a modern one in a suitable building, together with bath-rooms.* This was done, and the building has been used continuously since June 30, 1893. The cost of the work, including a few pounds for rearrangement of drains, &c., in grounds and old washhouses, was about 800*l.* All infected bedding and clothing, both from the hospital and from patients' residences, is disinfected by steam at a temperature of 260 deg. Fah., hot air being afterwards drawn into the stove to dry the articles. The apparatus is that known as the "Nottingham Disinfector," the makers being Messrs. Goddard, Massey, & Warner. All convalescents are obliged to have a bath before going home, and persons accompanying infectious cases to the hospital are treated in a similar manner. In 1892 an estate on the north side of the town, 52 acres in extent, with mansion and farm thereon, was purchased for 7,500*l.* The house has since been fitted for hospital purposes (Whitehill Hospital), and is intended to be used for the complete isolation of small-pox cases. The work of scavenging and refuse disposal, sanitary farms and tips, is under the Sanitary Committee, and in charge of the Chief Sanitary Inspector. The refuse is disposed of by burying and by raising the original surface of the land at the following places, viz.: — Newbridge-lane Depôt, area four acres; Warth Meadow Estate, parts of; Whitehill Estate, parts of. At the first-named the refuse banks are planted when completed, and the refuse is also filled into the deep holes made by excavating red rock sand for ironfounders, &c. At the two latter the low-lying areas are filled, and the raised land afterwards placed under cultivation. Since about 1884 the question of new streets and bridges, street widenings, and clearance of insanitary property has had unremitting attention, very large sums of money being expended, and still further proposed to be spent. The loans already taken up for above purposes exceed 73,000*l.*, and sanction for the further borrowing of 43,000*l.* has been applied for. The most important new street, which also necessitated 30 ft. of filling, is the continuation of Wellington-street from Hillgate to Churchgate. Almost all the main roads to the centre of the town are being widened. Two new bridges have been built—Millgate Bridge to Cattle Market and stables, and Mersey Bridge from Chestergate to Heaton-lane—and Lancashire Bridge widened, all from the designs of Mr. A. M. Fowler, the President; Park Bridge widening—part of the completed scheme of Great Portwood-street improvement—has been carried out from Mr. Atkinson's plans. In consequence of the various improvements, much insanitary property in the central portions of the town has been demolished. The town was fairly well sewered, so far as main outlets at right-angles to and flowing into the rivers are concerned, during the "Cotton Famine" in 1864, from the plans of the late Mr. J. Brierley, C.E. Much of the work was executed by, and was undertaken to provide employment for, the cotton operatives. Since the above year the Corporation have extended the main lines, and the minor sewers have been put down when new streets have been completed. Being an ancient town, a few obsolete forms of sewers exist, but these are being gradually relaid. Ventilation is by surface-gratings, assisted by about forty 6-in. by 4-in. shafts (and a few 6-in. round) up high gables, &c. Several automatic flushing-tanks are also provided. Their President, Mr. Fowler, is engaged upon the design and execution of a complete system of main intercepting sewers and sewage purification, estimated to cost 95,000*l.*, in addition to over 16,000*l.* paid for Heathside Farm, Cheadle Heath, the site of the works. Mr. Atkinson is also designing some miles of subsidiary sewers for roads where no sewers exist, to enable property connexions to be made more economically than would be the case if owners were compelled to connect to the shafts placed at intervals upon the intercepting sewers. The provision of pipe or brick sewers will also be needed to prevent pollution of watercourses supplying motive power to manufactories, and for considerable portions of the outer parts of the Borough, which, being unbuilt upon, have not hitherto needed such provisions. House drainage is affected mostly from the back, each dwelling built latterly having a separate connexion to the main sewer in the 9 ft. passage, or back street, constructed in pursuance of the 1890 Public

* The internal walls have a facing of best white enamelled bricks with salt-glazed dado.

Health Amendment Act. This sewer, serving, perhaps, two blocks of property (rarely exceeding ten to twelve houses in length) is trapped before entering the main street, and several ventilating shafts are fixed upon its length from the upper parts of the house drains by the builders, at their own expense. Fifteen telephonic fire-alarm boxes are placed throughout the town, thus enabling information to be conveyed to headquarters very speedily. There is a free library, containing 25,000 volumes, with reading-room and reference library attached. About one and a half miles of new streets are laid out, and three to four hundred new houses erected per year. About the same length of streets are paved yearly under the 150th section of the Public Health Act, 1875. All streets are lighted at ratepayers' expense. The lamps throughout the borough average 60 yds. apart, but those erected in recent years are placed about 40 yds. apart. Cost per lamp, 4*l.* 10s.; cost of maintenance, 2*l.* 15s. 3d. per year. The population has increased by about 1,000 per annum since 1881. Complete books, forms, and notices are kept in the building department, to record every stage of progress. Street nomenclature has received drastic attention, 250 duplicate names being altered in 1892. The Ordnance maps, scales 25 in. and 5 ft. to the mile, have been revised, and the Ordnance Survey Officials are about publishing the new sheets. The Highway Store Yard, St. Petersgate, has been remodelled, paved, drained, &c. Two companies own and work tramways in the town, whilst Stockport is particularly well served by the London and North Western, Cheshire Lines, Midland Railway, and other companies, and the Sheffield Company's Canal. There are seventy-five miles of roads, of which over fifty miles are maintained out of the rates. The public highways are well paved with either granite or grit setts, with Lancashire flags, cement, asphalt, or blue tiles on footpaths. There are only six miles of macadam roads, and but an insignificant length of boulder, or "petrified kidney" paving. About seven or eight miles of private streets need paving. Materials now used in paving private streets are fine machine-faced flags in footpaths (or "Best Barns," in important roads), 5-in. edgings, and blue or brown "Lonkey" setts, all from Lancashire quarries. The cost is about 41s. per yard of frontage, excluding the value of grouting paving with boiling asphalt and limestone chippings, amounting to about 4s. per yard of frontage, and which is defrayed out of the rates. Over thirty public urinals have been erected by the Council. Those built lately are faced with Accrington "stock" bricks in panels and pilasters, have stone or salt-glazed plinths, heavy stone coping, and are lined with slate slabs (with stall divisions of slate) and salt-glazed bricks. The cost per stall for this class of work is about 12*l.* to 15*l.* The Corporation are the owners of 272 acres of land in their estates, properties, &c., of a "purchase" value of about 120,000*l.*, and pay about 760*l.* per annum in chief rents. The total amount of loans taken up for street improvements, bridges, parks, sanitary, sewage, and other purposes since 1890 is over 200,000*l.*, and application has been made for about 43,000*l.* more. Mr. Atkinson also spoke of the Stockport parks and recreation-grounds, the market and fair grounds, and the gasworks.

Mr. T. de Courcy Meade, Manchester, in proposing a vote of thanks to Mr. Fowler and Mr. Atkinson for their papers, remarked, respecting the sewage works, that it was not always wise to criticise works which were in course of progress either adversely or favourably. He thought, however, in this case there was no fear of adverse criticism, because the scheme, as a whole, had been well and carefully thought out in all the details. He knew the difficulties were very great; but though he resided in the neighbourhood of the works he did not fear any nuisance therefrom. Mr. Atkinson's paper would be a useful addition to their annual volume of Proceedings.

Mr. Barber, Islington, who seconded, asked the depth of the gravel at the sewage farm, and the deflection caused to the bridge by the testing-load.

Mr. Baker, Middlesbrough, said he was in favour of vertical walls for settling-tanks.

The vote of thanks having been accorded,

The President, in reply, said the depth of the gravel at the sewage works was 20 ft., and the deflection of the bridge was a little over a quarter of an inch over the whole length of it.

Mr. J. T. Eayrs, West Bromwich, moved a vote of thanks to the Mayor.

Mr. Mawbey, Leicester, in seconding, congratulated Stockport upon having secured the services of one of the oldest, ablest, and most valued members of the Association.

The vote of thanks was accorded and acknowledged by the Mayor. During the afternoon the members visited the outfall sewage works, the steel lattice tubular bridge across the River Mersey, and the new stables.

THE LONDON COUNTY COUNCIL.

THE London County Council resumed its weekly sittings on Tuesday after the Easter recess, at the County Hall, Spring Gardens, Mr. Arthur Arnold, Chairman, presiding.

Blackwall Tunnel Works.—Mr. John Burns, M.P., asked if there was any truth in the statement that there had been a serious accident at the Blackwall Tunnel.

The Chairman said that he had received from the Engineer of the Council the following report:—"A rumour is current that a serious accident has occurred at the Blackwall Tunnel, involving the death of twenty men. I have the pleasure to contradict this. There was, however, an unusually large influx of water, about four o'clock this morning, which has been got under, and the men are again at work."

Wellington-street Widening, Strand.—The adjourned report of the Improvements Committee related to the proposed widening of Wellington-street, Strand, on the eastern side. The report concluded as follows, the recommendation being agreed to after some discussion:—

"In July last we advised the Council to acquire the whole site, and to sell for purposes of recoupment the surplus land not required for the improvement. We suggested that course because at that time the National Telephone Company would not sell less than the whole site. But now that the company are prepared to sell the strip of land required for the improvement, we are strongly of opinion that it will be better for the Council to purchase only that piece of land than to enter upon a scheme of speculative recoupment involved in the acquisition of the whole site. We consider that the amounts asked by the Duchy of Lancaster and the National Telephone Company are reasonable, and that the terms of the offers should be accepted by the Council. Wellington-street at its junction with the Strand is at present 64 ft. wide, and the Strand at this point has a width of about 68 ft. By the improvement proposed the corner of Wellington-street would be rounded and the width of the Strand at this point would be increased to about 80 ft., thus providing relief for the traffic which is constantly congested at this spot. . . . The present opportunity for carrying out the improvement at a comparatively small cost by the acquisition of vacant land free from any trade interest is a very favourable one, and should, we think, be seized by the Council. The Council is, we believe, convinced of the necessity of widening Wellington-street and the Strand, and it is hardly necessary for us to urge the importance of the work. It is right, however, to state clearly that if the present very favourable opportunity for carrying out the improvement be not taken, an expenditure of seven or eight times the present cost of the improvement will have to be incurred in the near future, when, as is inevitable, the improvement has to be carried out under the ordinary conditions of compensation. We recommend—

'That, subject to an estimate being submitted to the Council by the Finance Committee as required by the statute, the Council do accept the offer of the Duchy of Lancaster to sell to the Council for 10,000*l.*, and upon the conditions (*a*) to (*e*) inclusive set out in this report, and the offer of the National Telephone Company to sell for 6,000*l.* their interests in the strip of land at the eastern corner of Wellington-street, at its junction with the southern side of the Strand, and shown upon the plan submitted to the Council by the Improvements Committee, and to carry out the improvement as shown upon the plan; and that the solicitor be instructed to give legal effect to the arrangement with the Duchy and the company.'"

The Works Committee and the Cost of Work.—The report of the Works Committee was presented. This gave the cost of completed works as 178,863*l.*, and the total of corrected estimates as 176,086*l.*

Mr. Boulnois, M.P., moved that the consideration of the matter be postponed for a week, on account of its extreme importance. It was one of the most serious reports ever given to the Council, for it was practically a condemnation of the Works Department by its own Committee. The Unionists had all along contended that they were right in their assertion that the Works Department would be a failure, and the report justified the attacks they had made,

Mr. Burns, M.P., seconded the motion, which was carried.

London Building Act, 1894.—The Report of the Building Act Committee contained the following paragraphs, the recommendation being agreed to:—

"We have to report, for the information of the Council, that the Tribunal of Appeal has formally signified its concurrence, as required by the London Building Act, 1894, with the regulations made by the Council on March 26 last, under Section 123 of the Act, prescribing the course to be followed by applicants for permission to erect or adapt dwelling-houses on low-lying land,"—"We have to report that Messrs. Edell & Gordon have appealed on behalf of Mr. W. Hicklin, under Section 28 of the London Building Act, 1894, to the Tribunal of Appeal, against the certificate of the superintending architect defining the line of buildings on the north side of Prince George-road, Stoke Newington. The Council is empowered, under Section 181 of the Act, to defray the expenses of supporting by counsel and witnesses before the Tribunal any decision of the Council or of the superintending architect; and we recommend—

'That the solicitor do attend and support before the Tribunal of Appeal the certificate of the superintending architect defining the general line of buildings in Prince George-road referred to in the notice of Messrs. Edell & Gordon on behalf of Mr. W. Hicklin.'"

The Thames Embankment.—Mr. Ward, Chairman of the Works Committee, replying to criticisms as to the manner in which that body was repairing the roadway of the Thames Embankment, said it had not been able to employ more men on the work, as the length of the sections in hand at a given time was limited by the space between any two roads opening on to the thoroughfare. It had not been considered advisable to repair the road in longitudinal sections, as the steam-rollers on the half being dealt with would have frightened the horses on the half left open to traffic. The work would be finished in about a fortnight.

Insanitary Screens, Kensington.—Reports of Committees being disposed of, the following resolution was agreed to:—

"That it be referred to the Building Act Committee to consider and report whether means should not be taken to procure such a change in the law as will effectually prevent the erection of such insanitary screens as were lately put up in the rear of certain houses in Cheniston Gardens, Kensington, and which the Council, to their regret, found themselves unable to interfere with under the existing law."

The Council adjourned at seven o'clock.

THE SURVEYORS' INSTITUTION.

IN the Professional examinations, 1895, of this Institution, the following Student-Candidates have passed the examination for the Professional Associateship:—

H. Adams, Barnsbury; H. E. Bentley, London; T. D. Berry, jun., Wandsworth; P. S. Bidwell, Ely; F. J. L. Birch, Mangerton, Melplash, R.S.O., Dorset; G. H. Bradwell, Nottingham; A. S. Cartwright, Middlewich, Cheshire; C. Chart, Mitcham; D. G. Chattell, London; W. S. Cowper, Tunstall, Sittingbourne; K. N. Crowther, Clapham Common, S.W.; T. H. Driffield, Harrogate; E. S. Evans, Ealing Common, W.; E. C. Foster, London; H. F. Funnell, Camberwell; J. S. Garner, Uxbridge; G. L. Hankey, Epsom; W. R. Hicks, Hampstead; E. W. Hooper, Bruton, Somerset; H. B. John, Cathays, Cardiff; C. J. Lake, Crouch Hill; S. E. Lakin, Edgbaston; W. T. Lamprill, Stratford; C. G. Lovegrove, Potters Bar; G. E. Luck, Crouch End; J. W. Paul, East Finchley; W. S. Protheroe, Leytonstone; C. S. Sandford, nr. Sheffield; A. C. Skingle, Brixton; C. G. Smith, Stamford Hill; C. H. Southorn, Leamington Spa; *W. S. Walker, Sydenham Hill; †H. J. Watson, Petworth, Sussex; W. E. C. White, Kirkby Lonsdale, Westmoreland; W. White, jun., Newcastle-upon-Tyne; P. Whitton, Forest Gate; S. A. Wilde, London; W. Young, St. Albans.

The following Non-Student Candidates have also passed the Examination for the Professional Associateship:—

W. H. Aldis, Basingstoke; P. Allen, Croydon; T. J. Anderson, London; F. S. A. Banks, Stamford-hill; W. B. Boord, Waterloo, East Witton, Middleham, R.S.O.; P. F. Brooks, London; J. M. Brooks, London: A. Burton, jun., Wilmslow, Manchester; R. P. Butler, Downton; H. B. Campbell, Merton, Thetford; T. Corfield, Brockley; D. Egginton, Reading; P. B. Evans, Parson's-green, Fulham; H. C. Farmer, Bedford-park; G. S. Fleetwood, Highgate; H. M. Foster, London; T. S. Fraser, Glasgow; G. E. Gregson, Preston; F. W. Hall, Oakham; T. B. Hall, Birmingham; A. J. Hardwick, Bromley; A. Harrison, Stockton-on-Tees; C. H. G. Harrison, Downton; F. C. Harvey, Wimborne; S. S. Haywood, Accrington; W. P. Horton, London; L. L. Jackson, Garstang; A. P. Jenkin, Redruth; W. Keay, Leicester; W. H. Kemsley, Woodford Green; J. W. Kirk, London; M. P. J. Laumann, Bracknell; E. E. A. Lee, Highbury Hill; W. M. Lewis, Berw, Pontypridd; R. W. Menmuir, Lancaster; ‡H. M. Messenger, East

* Special Prize, 1895. † Institution Prizeman, 1895.
‡ Driver Prize, 1895, and Penfold Silver Medal, 1895.

Croydon; H. Nuttall, Bury; W. Parks, Bexhill; H. J. Pearson, Brixton, S.W.; F. O. Piercy, Lowthorpe; C. J. Purvis, Sevenoaks; G. H. Pye, Stockport; J. C. Scrivener, Tunbridge Wells; J. H. Shufflebotham, Kingston, Taunton; E. Smithells, Rivington, near Chorley; A. C. Standen, Streatham; W. M. Temple, Bedale; H. B. Vinten, Ramsgate; P. J. Waldram, Charing Cross; A. Worthington, Stockport; E. Youatt, St. John's Wood.

The following Professional Associates have passed the Fellowship Examination in Division IV.:—

J. W. Aris, London; L. H. Bailey, Reading; T. H. C. Bannister, Haywards Heath; E. J. Belcher, Wantage; G. W. Booth, London; J. W. Bradley, Nelson; H. G. Bradshaw, Manchester; T. E. Carr, York; *T. G. Chambers, London; A. W. Cooper, East Croydon; A. C. M. Cross, London; †C. F. Davies, Llanwrda, R.S.O.; E. W. Eason, London; A. E. Ellis, Exeter; F. G. B. Eves, Uxbridge; S. Ford, London; G. German, jun., Ashby-de-la-Zouch; P. G. Grover, Dover; E. J. Heward, Brockley; P. C. Holiday, Bicester; C. H. Hooper, Swanley; F. W. Jarman, Croydon; J. Jenkinson, Richmond; J. R. Lancaster, Putney Hill; W. A. Leaning, Denmark Hill; E. M. Longsdon, Bakewell; H. R. McCarthy, Highgate-road; H. E. Maddox, Hampstead; H. G. Martin, Littleport; S. Martin, Croydon; L. O Mathews, Birmingham; M. C. H. Norcolds, Saffron Walden; J. N. Norman, Putney; G. L. Pain, Carnforth; H. Pearson, Beckenham; C. R. E. Powell, Oakhampton; H. E. Prall, Dartford; F. B. Smith, Wye, near Ashford; H. W. Taylor, Newburn-on-Tyne; D. T. Thring, Chippenham; J. B. Watson, Brightwell, Tetsworth; W. H. Wells, London; C. H. E. West, Finchley; A. G. Woods, Hounslow; J. W. Wyles, Wanstead.

The following candidates have passed the direct Fellowship Examination in Division V.:—

A. O. Breeds, London; A. T. C. Fenn, Downton Castle, Ludlow; G. T. Field-Clarke, Colworth Estate, near Bedford; E. H. Leeder, Swansea; D. H. MacNicoll, Mostyn; J. E. Miller, A.M.Inst.C.E., Sunderland; A. Murray, Romsey, Hants.

ARCHITECTURAL SOCIETIES.

MANCHESTER SOCIETY OF ARCHITECTS (INCORPORATED).—The annual general meeting of this Society was held at the house of the Literary and Philosophical Society, 36, George-street, on the 23rd ult., the President, Mr. John Holden, F.R.I.B.A., in the chair. After the annual report had been adopted, the following members were elected as officers and Council for the coming session:—President—John Holden, F.R.I.B.A. Vice-Presidents—John Ely, F.R.I.B.A.; R. Knill-Freeman, F.R.I.B.A. Hon. Secretary—Paul Ogden, F.R.I.B.A. Assistant Hon. Secretary—Edward Hewitt, F.R.I.B.A. Members of Council—R. I. Bennett, F.R.I.B.A.; A. H. Davies Colley, A.R.I.B.A.; T. Chadwick, A.R.I.B.A.; R. Knill-Freeman, F.R.I.B.A.; F. Mee; J. D. Mould, A.R.I.B.A.; W. A. Royle, F.R.I.B.A.; E. Salomons, F.R.I.B.A.; J. H. Woodhouse, F.R.I.B.A.; T. Worthington, F.R.I.B.A. Members of Council (Associates)—J. S. Hodgson; H. E. Stelfox, A.R.I.B.A.; P. S. Worthington, A.R.I.B.A. Auditors—J. W. Beaumont, F.R.I.B.A.; C. H. Heathcote, F.R.I.B.A. Education in Architecture Committee—A. H. Davies-Colley, A.R.I.B.A.; John Ely, F.R.I.B.A.; F. Mee; J. D. Mould, A.R.I.B.A.; G. H. Willoughby, F.R.I.B.A.; J. H. Woodhouse, F.R.I.B.A.; P. E. Barker, A.R.I.B.A.; G. Brown; P. Hesketh, A.R.I.B.A.; J. S. Hodgson; H. E. Stelfox, A.R.I.B.A.; P. S. Worthington, A.R.I.B.A. Mr. C. R. Locke, Mr. Joseph Nodal, and Mr. Joseph Swarbrick were elected Fellows, and Mr. C. D. Rochester and Mr. F. J. Almond were elected Associates of this Society.

EDINBURGH ARCHITECTURAL ASSOCIATION.—On Saturday last the members of the Edinburgh Architectural Association visited the castles and churches of Crichton and Borthwick, under the guidance of Mr. Thomas Ross, F.S.A. (Scot.), architect. After inspecting Crichton Church the party walked to the castle, whose massive ruins stand on a height overlooking the river Tyne. This is one of those castles the nucleus of which was a simple keep, afterwards by additions developing into a castle on the courtyard plan, and the original keep still remains with all the later buildings, the erection of which probably extended over three centuries. Leaving Crichton the party walked to Borthwick Castle, a distance of less than two miles. The licence to build Borthwick was granted by King James I. in the year 1430 to Sir William Borthwick, afterwards created Lord Borthwick. This was at the time when so many of the collegiate churches were building throughout Scotland, so that the architectural details bear a great resemblance to these. Borthwick Church, adjoining the castle, was also visited. On the motion of Mr. W. W. Robertson, F.S.A. (Scot.), President, cordial votes of thanks were accorded to Mr. Ross for leading the party, and to the gentlemen who had granted permission to the members to visit the various buildings.

* Penfold Gold Medal, 1895. † "Crawter" Prize, 1895.

ENGINEERING SOCIETIES.

CIVIL AND MECHANICAL ENGINEERS' SOCIETY.—At the ordinary meeting of this Society on the 25th ult., a paper was read by Mr. W. Cooper Penn on "Chain Making." A history of iron chain cable making was given; the first cables used by the English navy being made by Messrs. Brown, Lennox & Co., at the beginning of the century, and they remained until 1830 the only firm who supplied the navy with these articles. The method of manufacture was gone into, the various proportions of the links that have been adopted at different times was given, and the various forms used. The paper was well illustrated by diagrams, photographs, and samples of chains, some of which had been tested to destruction for the purpose of showing the soundness of the welds, and the quality of the material of which they were made. A discussion followed, in which Messrs. William C. Street, E. H. G. Brewster, A. C. Moffatt, and A. Williamson took part, with others.

Correspondence.

To the Editor of THE BUILDER.

"RATIONAL BUILDING."

SIR,—I turned with interest to Mr. Huss's translation of the article "Construction," in Mr. Viollet-le-Duc's "Dictionnaire Raisonné," to see how he had rendered into English the French expression "tas-de-charge," for which we have no equivalent in our language. He translates it (p. 120) "a flat bed," which gives no conception of its meaning. The "tas-de-charge" (which literally translated means a heap or pile of burden) is the term given to the series of courses of stone with horizontal beds placed at the springing of the ribs of a vault. Their object was 1st, to spread the thrust of ribs with varying pressures, and to avoid the risk of crushing, which with a single course invariably took place in early vaults; 2nd, to lessen the risk of slipping; 3rd, to bring the thrust well within the walls; and 4th, to keep down the cost of the centreing. To explain my meaning—taking the vaulting of nave of Mr. Pearson's church of St. Michael and All Angels, Croydon (Plate 10 in my work on Architectural Drawing) it will be seen:—1st, that the thrust is spread through five horizontal courses, all bonded well into the wall; 2, the skewback is at such an angle as to prevent slipping; 3, the span between the transverse ribs, 22 ft., is diminished to 19 ft., when the voussoirs begin; and 4, the centreing required would be 8 ft. 6 in. high, instead of 22 ft. If Mr. Huss had put a "flat bed or horizontal course *pile*" it would better have expressed the meaning, a term which might in course of time have been reduced to "the pile" when speaking of a vault. The term "ancones" (p. 121) as a translation of "croisettes" is misleading, as that word is applied to the projecting bosses or ears, which in ancient masonry were used to move the blocks of stone. The term "croisettes" is given as an English word in Dr. Spiers's Dictionary, and might have been retained. Again, p. 121, "to adopt frankly the corbelling-out" is a better translation of "adopter franchement les encorbellements" than "to adopt the corbels out and out." Whilst bearing testimony to the great value which such a book is likely to have to benefit students, it is to be regretted a larger type was not employed. The smallness of the type is emphasised by the undue width of margin.

R. PHENÉ SPIERS.

THIN PARTITIONS.

SIR,—I did not maintain that a Spanish tabique possesses all the features of the Fireproof Construction Company's partitions, but when you referred to certain qualities of the latter as specially commendable I thought the occasion warranted mention of the fact that those particular features are obtainable by a simpler means of construction not generally known in England.

In saying that the kind of construction mentioned by me only compares with their own in point of thickness your correspondents understate the case, and are evidently not prepared to hear that a tabique, built of brick and plaster only, will, under suitable circumstances, stand the test they mention of cutting away the base. It all depends on the total height of the partition, and whether doorways intervene or not.

When a "maestro" wishes to build a partition between two main walls over a very weak floor he shores up the latter from below and builds on the top of a cambered fillet laid on the floor. When the partition is set he removes the shoring and knocks out the fillet, the partition remaining supported at the ends. A skirting fillet nailed to the floor on each side prevents lateral movement.

The method referred to shows how considerably a partition built in strongly-adhesive plaster differs in its behaviour from an ordinary brick wall, and that it is not "bound to be a dead weight upon the floor."

I have seen a warehouse which was simply a rectangular shell with floors and roof, converted into suites of rooms, with corridors and cross walls, all of 2-in. tabique, and these have stood the wear-and-tear of a hotel where people are constantly going in and out with the heaviest class of luggage. It need hardly be said that in this work the door-frames (or linings) are put together in a different way to the English system. The frames run from floor to ceiling, and the architraves planted on each side form a channel into which the brickwork is built, so that the edges are stiffened.

The chief defect of such partitions is that they are far from sound-proof, and their inferiority to thick walls in point of warmth would in many situations be another, these defects being, I imagine, inseparable from all thin partitions.

NORMAN WIGHT.

APPOINTMENT OF CLERKS OF WORKS IN BRISTOL.

SIR,—Will you kindly favour the members of my Association by inserting in your paper their disapproval with regard to the manner in which clerks of works are appointed in this city. A well-attended meeting of this Association was held at No. 11, High-street, to consider the matter, which is of great interest to the members as well as to others holding positions of equal responsibility. A resolution was adopted expressing strong disapproval of any man being appointed to superintend two or three different buildings at the same time.

Reference was made to the special meeting of the Bristol School Board on March 29. "Mr. Holmes Gore questioned whether they were pursuing the right course; either the clerks of works were not sufficiently vigilant, or the builders were careless in the use of materials—at all events the Board had suffered in some way or other."

We can only say that in our opinion it is impossible for one man to do his duty as clerk of works on two or three buildings, situated in separate localities.

This method, which is very general in Bristol, is undoubtedly detrimental to the principles of good building construction, and also discouraging to a man of good abilities to hold himself responsible for work over which he has not full control.

We sincerely hope the Bristol School Board and other public bodies will not adopt this "part time system," but, by the employment of thoroughly practical men, who will devote the whole of their time and abilities to the supervision of the work intrusted to their care, secure to the ratepayers buildings which will be a credit alike to the architect, builder, clerk of works, and to the citizens generally.

THE SECRETARY,
Bristol Association of Clerks of Works and Builders' Foremen.

THE RECENT SALE OF BLOCKS.

SIR,—Referring to your paragraph in last week's edition, will you kindly allow me to state that the blocks sold were not the blocks known as the "Bewick blocks."

The blocks known as the "Bewick blocks" are the wood blocks engraved by Bewick, and used in illustrating his principal and famous works—viz., Bewick's "Birds," "Quadrupeds," "Fables," and "Memoir," and *not* the blocks used in illustrating the smaller and less-known works. The whole of the above blocks are in the possession of my family, as left by the will of the late Miss Jane Bewick.

A memorial edition of the works of Thomas Bewick (five vols.) was published for us by Mr. Quaritch, of Piccadilly.

The few blocks engraved by the Bewicks, and sold last week, may be regarded as "pot-boilers" for illustrating children's books, &c.

We have about 1,800 blocks engraved by Bewick and they only are known as the "Bewick blocks."

April 30, 1895. A. J. BEWICK WARD.

The Student's Column.

BRICKS AND TERRA-COTTA.—XVIII.

STRENGTH.

THE strength of bricks is not only modified by the irregular dimensions of their sides and local rugosities, and the kind of material between which they are placed to be crushed, but by the presence or absence of recesses (frogs) on them. In most instances, no doubt, the presence of "frogs" is very desirable from the point of view of building construction, but they decidedly weaken the brick, as also do indented figures of any kind. Apart from the results derived from crushing, we know that minute cracks are induced to form in the vicinity of the indentations, as remarked on a previous occasion. In crushing a "frogged" brick, especially where there is a "frog" both top and bottom, the dies of the machine are applied to its edges only, the result being that it "gives" all the way round, at first, leaving only the central core to bear the compression of the final stress laid upon it. In recording "crushing strengths," therefore, it is very necessary to state whether the bricks referred to were "frogged" or not.

The following table, compiled from various sources, gives the strength of several well-known bricks. In nearly every instance six bricks were experimented with, and the table gives the maximum and minimum stress recorded with reference to these. The actual stress to which the whole bricks were subjected, prior to their being cracked, or crushed, is not, of course, strictly comparative, because the dimensions of each piece were not the same. In order to make that clear, and so that the student may be enabled to see how far the ultimate crushing strength was affected thereby, we have deemed it advisable to state the precise dimensions of the bricks. This is useful, also, as demonstrating the difficulty, even with machine-made and pressed bricks, in obtaining an absolutely uniform size :—

Strength of Bricks.

Description.		Dimensions.	Stress, Lbs.		Mean Stress of Several Samples of Each Kind.			
					Lbs. per square inch.		Tons per square foot.	
			Cracked slightly.	Crushed.	Cracked slightly.	Crushed	Cracked slightly.	Crushed
		Inches.						
Ruabon, red (no recess)	Max.	3·10, 8·75 by 4·28	336,050	461,500	6,830	10,525	439·2	676·8
" " (")	Min.	3·15, 8·73 by 4·29	168,250	271,300				
" blue (")	Max.	3·02, 8·99 by 4·37	307,100	388,050	5,582	8,727	358·9	561·2
" " (")	Min.	3·01, 8·95 by 4·36	258,600	302,050				
Near Rugby, light brown (wire cut)	Max.	2·85, 8·92 by 4·20	107,500	237,200	2,047	4,725	131·6	303·9
" " " (")	Min.	2·90, 9·10 by 4·25	47,400	155,100				
West Bromwich, blue	Max.	2·74, 9·03 by 4·36	378,600	689,220	8,531	16,549	548·6	1064·2
" "	Min.	"	306,800	603,420				
" " (another kind)	Max.	2·80, 8·75 by 4·12	168,000	387,520	4,054	10,125	260·7	651·0
" " (")	Min.	"	128,000	328,620				
" White glazed terra metallic (recessed both sides)	Max.	3·10, 8·80 by 4·22	156,240	173,460	3,498	4,256	225·0	273·7
" " "	Min.	3·16, 8·70 by 4·34	104,120	140,880				
" blue vitrified	Max.	2·55, 9·03 by 4·30	187,500	449,680	3,812	10,115	245·1	654·9
" "	Min.	"	115,800	366,340				
Rowley Regis, blue vitrified (no recess)	Max.	2·85, 8·75 by 4·20	238,400	425,820	5,997	11,239	385·6	722·7
" " (")	Min.	"	202,400	387,940				
Saltley, Birmingham, red (recessed on one side)	Max.	3·20, 8·90 by 4·35	79,990	122,040	2,157	2,808	138·7	180·5
" " " "	Min.	3·25, 8·95 by 4·40	68,400	84,560				
Ravenhead, Lancs., reddish brown (wire cut)	Max.	2·90, 9·00 by 4·20	163,100	228,400	3,356	5,516	215·8	354·7
" " (")	Min.	2·90, 8·90 by 4·27	106,600	194,200				
Worcester, "pressed" (recessed both sides)	Max.	3·20, 9·14 by 4·50	45,680	91,180	1,010	2,170	65·0	139·5
" "	Min.	"	36,180	85,820				
" "builders'" "	Max.	3·20, 9·30 by 4·50	40,960	113,220	872	2,418	56·1	155·5
" ")	Min.	"	33,540	95,840				
Leicester, red (")	Max.	2·65, 8·90 by 4·25	77,500	99,160	1,648	2,342	105·9	150·6
" " (")	Min.	2·75, 9·10 by 4·36	51,900	85,290				
Glogue, Whitland, S. Wales (slate débris)	Max.	2·33, 8·70 by 4·25	355,200	633,180	8,653	16,424	556·4	1056·2
" (")	Min.	"	295,200	581,920				
Gillingham, Dorset, red (wire cut)	Max.	2·60, 8·90 by 4·30	120,200	168,100	2,481	4,069	159·5	261·7
" " (")	Min.	2·60, 8·90 by 4·25	69,800	141,800				
Newton Abbot, vitrified "granite"	Max.	2·80, 8·90 by 4·35	—	323,900	—	6,924	—	445·2
" "	Min.	2·80, 9·10 by 4·55	—	231,940				
Near St. Ives, Hunts, yellow (wire cut)	Max.	2·50, 8·70 by 4·10	88,600	117,820	2,114	2,781	135·9	178·8
" " " (")	Min.	2·50, 8·80 by 4·20	51,000	91,509				

From the above table it will be noticed that considerable discrepancy exists between each brick in regard to the relative stress required to crack and to crush it. The minimum result on the red brick from Gillingham, for instance, showed that it became slightly cracked at 69,800 lbs., but did not absolutely give way until a stress of 141,800 lbs. was reached. In other words, it required nearly double the compressive force to crush it, than was necessary to crack it simply. On the other hand, the maximum result on the bricks from the same yard showed that the extra compression—the difference between cracking and crushing—was only about one-third of the ultimate crushing strain—and this, with wire-cut bricks of similar dimensions. Regarding these differences generally, as given in the table, it would seem that very little dependence can be placed upon the cracking of bricks in walls, as an index of their crushing. In other words, assuming the compression exerted by a column of bricks in a tall chimney were to crack several bricks at its base, that is no proof that the weight, plus wind pressure, &c., would ultimately crush the bricks. Some bricks evidently give way entirely with but little extra pressure beyond that required to crack them, whilst others demand such a further amount of compression before being destroyed that there could be no likelihood of their ever being subjected to it. This, of course, ignores the fact that on being cracked, the agents of denudation would be materially assisted in accomplishing their work, so that the ultimate strength of the wall, in process of time, would be impaired by the appearance of cracks.

In regard to those columns detailing the mean stress exerted on several samples of the same description of brick, these results are theoretically more important to the architect, as they are to a large extent comparable with one another. As indices of the actual strength of each particular kind of brick tested, however, they are not of the same value as the two columns recording the maximum and minimum stress on individual bricks. We should always remember that there is a general tendency to "select" the specimens to be tested, even though they be described as "average" bricks. It is better, therefore, on these grounds, to take the minimum results as being the real strength of the materials as a whole, rather than to use a "mean" result. Taking the figures as they stand, we note that the strongest brick was one of the "Staffordshire blues" from West Bromwich, which yielded the phenomenal result of 1,064·2 tons per square foot; and, glancing at the maximum and minimum results (referring to six bricks), we observe also that the others from the neighbourhood of West Bromwich crushed with a thrusting stress of 651 tons and 654·9 tons per square foot, respectively, whilst one from Rowley Regis came out at 722·7 tons, far in excess of practical requirements. The lowest result recorded in the table refers to the Worcester "pressed" bricks, frogged on both sides, which only withstood a pressure of 139·5 tons per square foot; and the Leicester "reds" were not much better, with 150·6 tons. That bricks made of slate débris may be exceedingly strong is brought out by the results on the samples from Glogue, near Whitland, which run very close to the West Bromwich results mentioned above, with 1,056·2 tons per square foot. The bricks mentioned as being "frogged," or "recessed," are amongst the lowest recorded results.

The researches of Professor Unwin* are not altogether in accord with the results given in the above table. His highest figure with reference to the crushing of Staffordshire blue bricks is 464 tons per square foot—much lower than that previously given. On the other hand, he found that some Leicester red wire-cut bricks came out at 337 tons. According to the same observer, common London stock bricks were crushed at from 103 tons to 181 tons per square foot, Aylesford common from 183 tons to 228 tons, Cranleigh pressed from 181 tons to 237 tons, and Gault wire-cut from 145 tons to 173 tons per square foot. The lowest results referred to a wire-cut Grantham brick with 83 tons, and "red rubbers," three in column, bedded in putty, with 25 tons per square foot.

From this it is clear that bricks of the same description materially vary in regard to strength; as a general rule, however, they are not so variable as are many kinds of freestone. The results arrived at by Professor Unwin were derived from bricks the upper and lower surfaces of which were made smooth and parallel by plaster-of-Paris and crushed between two millboards, or the iron pressure-plates of the testing-machine. On the other hand, the results given in the table above were obtained by placing the bricks tested between pieces of pine ⅜-in. in thickness. In the last article we gave our reasons for preferring the plaster of Paris treatment.

The late Metropolitan Board of Works caused many experiments on the strength of bricks to be carried out during the years 1859–1863. Full particulars will be found in the *Minutes of Proceedings of the Institution of Civil Engineers*, vol. xxv. (1866), pp. 98 *et sqq.* The results are expressed in terms referring to the amount of pressure each brick sustained, instead of per square foot. The "best white" Suffolk bricks on an average crushed at 19·60 tons each; ordinary (Brimstone) Suffolks from 31 tons to 48·45 tons; Gault from 32·38 tons to 37·90 tons; best Fareham "rubbers," 15·70 tons; Gault wire-cut, 60·78 tons; and Wortley (Leeds) blue, 72 tons.

Amongst the numerous results given in the last-mentioned work is a table detailing some experiments on small blocks of stone, of the dimensions of an average brick, with "frogs" sunk therein, with a view to test the relative strength of stone and brick under similar conditions, in connexion with sewer-work. It was found that Portland-stone, on the bed, came out at an average crushing strength of 47 tons; ditto against the bed, 42·66 tons; Bramley Fall, on the bed, 91·33 tons; ditto against the bed, 52·66 tons; whilst Yorkshire landings resisted the utmost capacity of the press, with about 100 tons, both on and against the bed. These figures may be contrasted with those previously mentioned.

In another series of experiments for the same body the following results were obtained :—

Description of Bricks.	Pressure in tons to	
	Crack.	Crush.
Good London "Grey-stocks"	12·00	14·00
Best "Paviours"	14·00	23·00
Red-bricks, not fully burned	13·75	25·05
" ordinary quality	13·00	26·25
Three White-bricks, each	17·05	41·05
Four " "	16·25	41·00

These experiments were directed to test the relative qualities of hand-made and machine-made bricks. It was found that with the machine-made, after the first cracking, a greater weight was required to crush them than with hand-moulded bricks.

Bricks made of Middlesbrough slag, in a manner previously described, withstood pressure as follows :—Some taken from a stock three years

* "The Testing of Materials of Construction," 1888 p. 438.

old crushed at twenty-one tons each, others from a stock only four months old were crushed with nine tons pressure; thus showing, as in the case of certain cements with which they may be compared, that their strength increases with age, up to a certain point.

GENERAL BUILDING NEWS.

ASHBOURNE CHURCH STEEPLE.—The repair of the splendid steeple of Ashbourne Church (the Minster of the Peake), just completed, with the exception of rehanging the old bells, was not undertaken too soon. The stair-turret, and middle stage of tower (of earlier date than that above it) had opened considerably. The east and south walls of the upper stage carrying the spire had to be shored up from the floor of the church whilst the critical work of rebuilding this angle was carried on. Before commencing this work, the opposite walls were bonded together (permanently) with two tiers of rods of "Delta" metal; which is free entirely not only from rust but from the dangerous expansion and contraction of iron. Of the spire, the two lower stages were spreading, and there were large fissures, extending to a considerable height, on three of the angles. The top stone and cap were split from the expansion of the iron rod carrying the vane, which has likewise been now made of "Delta" metal. A great deal of stonework was injured or destroyed by the rusting of iron cramps and tie-bars, which had ceased to afford the requisite support. None of the carved or moulded work was even cleaned, nor the general surfaces touched; but very large bonding stones were built in and large quantities of concrete were poured into the walls. Very nearly 5,000 cubic feet of stone were nevertheless required. The height to the top of the vane is about 218 ft. The beautiful bells, eight in number, the veritable peal which inspired "those evening bells," are hung temporarily in their old cage, brought down into the churchyard, till funds shall be available for restoring them to the tower, in which they could now be rung with safety. The work took three years to execute, at a cost of very nearly 5,000*l.* The greater part of the work was carried on without a contractor, by Mr. Ralph Clifton, as building-foreman and clerk-of-works. The architect was Mr. William White, F.S.A.

THE THOMAS MUIR MEMORIAL HALL, PAISLEY.—The foundation stone of the Thomas Muir Memorial Hall, which is being erected in North-street, in memory of Mr. Thomas Muir, was laid on the 20th ult. The building consists of a hall 50 ft. by 31 ft., and 24 ft. in height. It is seated for 318, exclusive of platform. To the north of the hall are a class-room and committee-room, while in connexion with the lobby to the back are several class-rooms and a lavatory. The class-room and lavatory are connected by a movable partition. The main entrance to the hall is by a central door in front of the building. The style of the building is a simple treatment of early Norman, the front portion being formed of Locharbriggs red stone, while the other walls are built of brick, faced with terra-cotta brick from Braidwood. The contractors for the various departments of the work are as follows:—mason work, William Taylor, Paisley; joiner work, Angus M'Fadyen, Paisley; slater work, James Gillespie & Son, Paisley; plumber work, Joseph Thomson, Paisley; plaster work, William Speirs, Paisley; brick work, Thomas M'Caig, Paisley; steel roof work, Brownlie & Murray, Glasgow; glazing, A. Drummond & Co., Glasgow. The architect is Mr. Charles Davidson, Paisley.

RECONSTRUCTION OF THE THEATRE ROYAL, GLASGOW.—A lining, says the *Glasgow Herald*, has been granted to Messrs. Howard & Wyndham, theatrical proprietors, to restore and reconstruct the Theatre Royal, in Cowcaddens, Hope-street, and Rutherford-lane, Glasgow. Although the interior of the new house will be similar to that which existed before the fire, the plans provide for several important alterations in details which will conduce to the public safety and comfort. Mr. C. J. Phipps, of London, in his designs has had specially in view the prevention of fire. The auditorium and the stage will practically form two separate buildings. The gable which formerly divided the two parts will be allowed to remain and constitute the boundary of the auditorium. A new wall will be erected 10 ft. behind, and will form the boundary of the stage—thus giving practically a double proscenium wall, and avoiding contact between the roof of the auditorium and the roof of the stage. The whole of the opening of the stage will be filled up by a fire-resisting curtain. The present staircases will remain, but they will be roofed with concrete. The auditorium will accommodate about 3,000 persons, an increase of 500 on the old house. Three hundred seats will be added to the pit, and the gallery will be reduced in size to allow of a refreshment-bar being provided on the top floor. The boxes will remain the same, and will have emergency staircases leading to the street. The old horseshoe dress-circle will have less of a sweep, being brought nearer the stage. The corridors are to be of concrete, as well as the passages to the dressing-rooms and the dressing-room staircase, and the gallery and upper-circle stair will be covered with concrete at the top. The flies on both sides of the stage are to have double iron doors. The roof of the auditorium is to be lowered 6 ft., and the depth of the stage is to be slightly less than formerly. The entrances to the theatre remain the same. Messrs. Morrison & Mason are the contractors.

CHURCH, FULHAM.—The Bishop of London on the 27th ult. consecrated the new church of St. Matthew, at Fulham, the foundation-stone of which was laid in October, 1893. The church is situated in the Wandsworth Bridge-road. The architect was Sir Arthur Blomfield. Red and yellow brick and white stone have been the materials chiefly employed, the roof being red tiled. The plan upon which the church was laid out comprises a nave and two aisles with chancel, to which an organ chamber and south aisle have been added, the whole providing accommodation for about 850 worshippers. Wood blocks form the flooring, while the seats, choir-stalls, and temporary pulpit are of pitch-pine. The vestries are placed below the chancel, a stone stairway being provided.

TECHNICAL SCHOOL AND FREE LIBRARY AT NELSON.—A new technical school and free library, erected by the Corporation of Nelson at a cost of about 10,000*l.* (exclusive of the site), was opened recently by Sir Philip Magnus. The buildings have been designed by Messrs. Holton & Fox, of Dewsbury, and are situated in Market-street and Ellen-street, in the centre of the town, and will, at some future time, constitute the south wing of the Municipal Buildings. The main entrance to the free library is from Market-street, and the building contains public reading-rooms, and accommodation for the reference and lending libraries. The lending library has accommodation for 20,000 volumes, and at present contains about 6,000. The technical school is also provided with accommodation for instruction to students in technology, science, arts, and other subjects.

UNITED METHODIST FREE CHURCH EXTENSION, MEERSBROOK, YORKSHIRE.—Memorial-stones of a United Methodist Free Church for Meersbrook have just been laid in Valley-road, Heeley. The building, which will be of red brick, faced with stone, is to contain a large hall, 46 ft. by 30 ft. There will be two class-rooms, 15 ft. by 16 ft. Accommodation will be provided for from 350 to 400 persons. The architect is Mr. A. J. Greenwood, and the contractors Messrs. Wilkinson & Sons.

SCHOOL BUILDINGS, ABBEYDALE, SHEFFIELD.—On the 22nd ult. the new departments for girls and infants were opened at Abbeydale. The buildings previously erected comprise schools for boys and for junior boys and girls mixed, and the new schools provide for infants and senior girls. The departments for girls and infants are provided with four class-rooms, each for sixty scholars, and large school-rooms. All the class-rooms can be seen by the head-teacher when in separate use, and they can be thrown into one auditorium with the school for exercises and meetings by means of the single action sash partitions. There are rooms for teachers and stores, and cloak-rooms and lavatories under control for scholars. The accommodation sanctioned by the Education Department is for 782 scholars. The contractor for the general work was Mr. John Greenwood. The asphalting of yards has been done by Mr. John Hadfield; the warming apparatus by Messrs. J. C. & J. S. Ellis. Mr. E. Cartwright has acted as clerk of the works, and the architect is Mr. C. J. Innocent, Sheffield.

NEW BUILDINGS, CARDIFF GAS COMPANY.—The Cardiff Gas Company's offices in Bute-terrace are to be replaced by more convenient buildings. The designs for the new erection have been prepared by Mr. Henry Morley, the engineer, and the contract is in the hands of Mr. James Allen. The new building will consist of two stories, and it will be constructed of Newbridge stone with Bath-stone dressings. The ground floor is to consist of a large vestibule, on either side of which will be the general offices (52 ft. by 31 ft.) and show-rooms (36 ft. by 31 ft.), and there will also be large show-rooms, stores, secretary's offices, ledger clerk's offices, strong-room, and inspectors' offices. The second floor will consist of board-room (34 ft. by 31 ft.), engineer's office, clerks' office, drawing-office, laboratory, printing-room, and stores.

SCHOOLS, WOLVERHAMPTON.—On the 22nd ult. the Walsall-street new schools, connected with the Wolverhampton School Board, were opened. The schools consist of a three-story block of buildings, and provide accommodation for 250 boys, 250 girls, and 325 infants in the class-rooms, exclusive of the three halls. The infant accommodation is provided on the ground floor; the girls are placed on the first floor, and the boys on the top story. Each floor consists of a hall 52 ft. 6 in. by 30 ft. 6 in., facing Walsall-street, with five class-rooms opening out of the hall. The accommodation for hats and cloaks and the lavatories are provided at either end of the halls, also the rooms for the use of the head teachers, convenient of access from the staircases. Covered sheds are provided in the playgrounds, and a separate approach to each department is arranged for under the caretaker's house from St. James's-square. The buildings are built in red brick, with terra-cotta dressings, and covered with brindled tiles. Internally the floors are formed of concrete on iron joists, on which are laid wood blocks to all the floors excepting the corridors, lavatories, and hat and cloak-rooms. These are finished in asphalt. The steps are of York stone. The walls are plastered and coloured, with a cement dado. The woodwork is all best red deal, painted. The playgrounds are covered with tar paving, and the roofs of the play-sheds and lavatories are covered with zinc. The work generally, the contract for which was 9,825*l.*, has been carried out by Messrs. Willcock & Co., contractors, of Wolverhampton. The terra-cotta was supplied by Messrs. Dennis, of Ruabon; the wrought-iron gates and railings by Messrs. Brawn & Co., of Birmingham. The premises are heated throughout on the hot-water low-pressure system, with ventilating radiators admitting warm fresh air to each room. This has been fixed by Messrs. Killick & Cochran, of Liverpool, and the electric-lighting installation and fittings by Messrs. Scott & Co., of Birmingham. The whole of the work has been carried out under the personal superintendence and direction of Mr. T. H. Fleeming, of Wolverhampton, Architect to the Board.

COTTAGE HOSPITAL, BRIDGEND, GLAMORGANSHIRE.—The foundation-stone of the Cottage Hospital in course of erection at Bridgend was laid on the 24th ult. The building, which is designed to accommodate eight patients, comprises a ward for each sex, an isolation room, operating room, the usual domestic offices, and rooms for attendants and nurse. The contract has been let to Mr. Edward Preece, Bridgend, at 1,500*l.*, and the architects are Messrs. Lambert & Rees, of the same town.

SCHOOL BUILDINGS, SHAFTON, YORKSHIRE.—In connexion with the Wesleyan Chapel, Shafton, new Sunday-schools and vestries have been erected. The architect was Mr. Moxon, of Barnsley.

ADDITIONS TO ST. MARY'S COLLEGE, WOOLHAMPTON, BERKSHIRE.—On the 17th ult. the ceremony of blessing the new buildings erected in memory of the late Captain Joseph Boardman Haydock, by his widow, took place at St. Mary's College, Woolhampton. The new buildings, just completed at a cost of 10,000*l.*, are, like the rest of the College, in the early Tudor style. The material used is red brick, but stonework is also employed. The main entrance to the "Haydock Wing" is through a deeply-moulded archway, beneath a low square battlemented tower. Passing through the main staircase and the reception-rooms, a short corridor brings the visitor to the "Haydock Hall." Close by the Hall is the refectory. On the upper floor of the new building are rooms for the bishop, the professors, and for guests, two large dormitories, and an infirmary. A stone-coped wall has been placed round the College grounds, and an entrance gateway erected. The architect was Mr. Frederick A. Walters, F.S.A.

ADDITIONS TO ST. SAVIOUR'S CHURCH, WALMER.—A Vestry Meeting was held at Walmer last week, the Vicar (the Rev. Henry Venn, M.A.), presiding, when it was resolved to add a north aisle to St. Saviour's Church, with new organ-chamber and vestry, these enlargements being required to meet the demands of the rapidly-growing congregation. Designs had been prepared by Mr. Dinwiddy, architect, upon the Vicar's instructions, and have already received the approval with a grant by the Diocesan Church Building Society. Upon the motion of Admiral Douglas the plans were adopted, and it was decided to proceed with the work forthwith.

NEW CHURCH OF ST. LAWRENCE, BARTON, NEAR PRESTON.—On Monday afternoon in last week the foundation-stone of the new church of St. Lawrence, Barton, near Preston, was laid by Viscount Cross, G.C.B. The new church, which is estimated to cost about 5,000*l.*, is being erected to take the place of an existing building, which is unsuited to the purposes of Divine worship, and is being carried out from the designs and under the superintendence of Mr. R. Knill Freeman, architect.

HALL FOR PARISH CHURCH, DAILLY, AYRSHIRE.—On the 27th ult. the foundation-stone of a new hall for the parish church was laid. The hall, which was designed by Mr. Allan Stevenson, architect, Ayr, will accommodate 300 persons.

BATHS, SIDMOUTH, DEVONSHIRE.—New baths, which have been erected on the Esplanade at a cost of 6,000*l.*, were opened at Sidmouth on the 27th ult. There are reclining and deep baths, an Aix-les-Bains-room, and a swimming-bath. The club premises include a billiard-room, reading-room, smoke-room, card-room, and sleeping apartments, with accommodation for the steward on the second floor. The building has been erected by Mr. Gibson, of Exeter, from designs prepared by Mr. R. C. Murray, of Sidmouth.

NEW CHURCH AT HEATON, NEAR BOLTON-LE-MOORS.—At Heaton, near Bolton-le-Moors, last week, Lord Stanley, M.P., laid the corner-stone of a new church which is being erected to replace an iron structure. The cost of the new structure, which is to be called Christ Church, and is in the Late Decorated style of architecture, will be about 4,000*l.* Mr. R. Knill Freeman is the architect.

SANITARY AND ENGINEERING NEWS.

ENFIELD WATER SUPPLY.—At the ordinary meeting of the Enfield Urban District Council held on the 18th ult., the scheme for an improved water supply as prepared by their consulting engineers, Messrs. Taylor & Crimp, of Westminster, was adopted, and it was resolved to apply to the Local Government Board for sanction to borrow 11,000*l.* for the execu-

tion of the work. The works comprise the sinking of a new well through the tertiary formation, the driving of 300 ft. of headings in the chalk, and the provision of a new pumping-station, with engines in duplicate, of a total h.-p. of 120.

FOREIGN AND COLONIAL.

FRANCE.—A monument to the memory of the landscape-painter Pelouze is to be erected in the Bois de Cernay (Seine-et-Oise), to be completed by May next year. M. Falguière is the sculptor and M. Mayet the architect.——The Government authorities intend to have an artesian well pierced at Ivry-sur-Seine.——A new Hôtel de Ville is to be built at Vauves, as well as a covered market.——An important pictorial decoration has been placed in the Salle des Fêtes of the Mairie of Montreuil, by M. Bourgonnier, an artist of talent, who was selected in a competition organised by the Conseil-Général of the Seine.——The bridge at Poissy is to be rebuilt shortly, at the joint cost of the Ouest Railway and of the town of Poissy.——The "Société des Amis des Arts" at Calais is organising an Exhibition to be opened on June 1 and remain open till October.——The Art Exhibition of Bordeaux will be opened to-day (Saturday).——A competition has been opened for the erection of a chapel at Biarritz, in the quarter of the former Imperial domain.——The monument which has been proposed to Pierre Puget, the sculptor, at Marseilles. is to be erected in the Place de la Bourse.——The new "Pont Mirabeau," between the quarters of Passy and Grenelle, is to be opened this month.

MISCELLANEOUS.

CLERK OF WORKS APPOINTMENT.—We are asked to state that in answer to an advertisement in our issue for April 20, for a clerk of works for the Gillingham and Grange United District School Board, there were eighty-four replies, and the Board at its meeting on April 25 appointed Mr. Thomas Cramp, of Chatham, to the position.

ADDITIONS TO ALTAR, ST. MICHAEL'S AND ALL ANGELS' CHURCH, EXETER.—Additions have just been made to the altar at St. Michael's and All Angels' Church, Exeter, all being in oak. The work has been carried out by Messrs. Harry Hems & Sons, who also made the carved oak pulpit, from designs by Sir Arthur W. Blomfield, A.R.A.

WATER AND LEAD POISONING, HECKMONDWIKE, YORKSHIRE.—The annual report of Dr. H. T. Broughton, Medical Officer of Health for Heckmondwike, submitted to the District Council on the 22nd ult., and ordered to be printed, concludes with a reference to the water supply of the township. This was stated to have been ample during the past year, but unfortunately the water acted on the lead service pipes. "I have spoken," says Dr. Broughton, "on the subject before, but it is of such importance that I refer to it again. Water so impregnated causes in time in those who regularly drink it an impaired state of health which is not always easy to account for. I would still advise you to insist on other than lead pipes being placed in new houses. The wrought-iron pipe lined with tin has proved itself an ideal pipe, and water has no corrosive action on it, and can be delivered to the consumer as pure and uncontaminated as at its source."

ANNUAL DINNER OF THE SHEFFIELD MASTER BUILDERS' ASSOCIATION.—The annual dinner of the Sheffield Master Builders' Association was held on the 25th ult. at the King's Arms Hotel, Sheffield. Mr. James Longden, President of the Association, occupied the chair. A statement laid before the meeting by the hon. secretary, Mr. Henry Chambers, showed that the Association has now a membership of sixty. The most important matters dealt with during the past year have been two actions taken on behalf of members against persons who had, on the advice of their architects, retained moneys as damages for delay in the completion of contracts within a specified time. In both cases the Association succeeded in enforcing payment. Action was also taken in connexion with the case "Sheffield Corporation *v.* Young and others," and the Association have further been successful in inducing the Corporation to reallow the use of earthenware gullies in place of the iron ones used by them. A subject now being considered is the form of agreement existent between builders and their employés, which allows no appeal from the decision of the architect. Unsuccessful efforts have been made to induce the Sheffield architects to adopt what is known as the London agreement, under which, in case of dispute, reference is allowed to a third person, but the hope is expressed that some arrangement will shortly be arrived at which will do away with the cause of complaint that the Sheffield builders now have. The loyal toasts having been honoured, Mr. Joseph Coward gave "The City and Trade of Sheffield." Their own trade, he said, had on the whole been fairly employed, although not perhaps as well as they might have hoped. Referring to the subject of strikes, the speaker remarked on the great hardship which was caused to the wives and children of workmen. Soon he hoped they would obtain a tribunal by which these disastrous strikes could be avoided. The existence of a board or boards of arbitration, composed of thoroughly competent men, would be a great blessing not only to masters but to the workmen themselves. Mr. C. Ross briefly responded. Mr. H. Brumby proposed "The Corporation," and Councillor G. Carr responded. "Success to the Master Builders' Association" was given by Mr. John Biggin, and responded to by Mr. John Spink and J. B. Corrie.

SANITARY INSPECTORS' VISIT TO THE SANITAS WORKS.—On the 26th ult., the members of this Association, to the number of about 250, paid a visit to the works of the Sanitas Company, Bethnal Green, on the invitation of the directors of the Company. Mr. Kingzett, the managing director (the inventor of Sanitas), conducted the party, and in a preliminary lecture, explained the chemical principle with which nature has endowed the pine, the eucalyptus, and a few other trees, and the manner in which this principle has been utilized in the manufacture of "Sanitas." In addition to the most ordinary forms of Sanitas, which, in its refined state, is a nearly transparent liquid of amber colour, aromatic, and non-poisonous; crude sanitas, sanitas powder, sanitas oil, and sanitas made into composts with slaked lime, sawdust, and other similar materials, were shown in different stages of manufacture. Sulphur candles, Kingzett's "Sulphugators," the "Sanitas Eucalyptus Disinfector," and various other appliances for disinfecting with Sanitas preparations were successively shown and explained. After the tour of inspection, the visitors were entertained at luncheon in one of the warehouses. The toast of the day, "Success to the Sanitary Inspectors' Association," was proposed by Mr. Kingzett. Mr. H. Alexander (late Chairman of the Council of the Sanitary Inspectors' Association), Mr. Raymond (Hon. Treasurer), and Mr. E. Tidman (Hon. Secretary), responded to the toast. Mr. Tidman, in the course of his remarks, gave the members some interesting details with regard to the Sanitary Conference proposed to be held at Worthing at Whitsuntide. The Mayor, Corporation, and townspeople are preparing for the Inspectors a hearty welcome, and the railway company is behaving generously in regard to the trains and fares. Mr. Tidman concluded by proposing a toast to the continued prosperity of the Sanitas Company.

REREDOS, SHARROW CHURCH, SHEFFIELD.—A carved oak reredos and retable, Perpendicular in style, has been given to this church by a member of the congregation. The framework was designed by Mr. C. Hodgson Fowler, F.S.A., and the paintings were designed and executed by Messrs. Percy Bacon Bros., of London. The centre panel contains a representation of the Crucifixion, after Martin Schongauer. The four other panels contain various saints. The whole is on a gesso background, and highly gilded.

LEGAL.

ACTION FOR DAMAGES, FOR ALLEGED LOSS OF LATERAL SUPPORT, IN THE QUEEN'S BENCH DIVISION.

IN the Queen's Bench Division on the 26th ult., the case of White *v.* Heyworth came on for hearing before Mr. Justice Wills, sitting without a jury, it being an action brought by Mr. Edwin White, a baker, formerly carrying on business at 60, Stamford Hill, against the defendant, Mr. W.W. Heyworth, to recover damages for alleged trespass, and for the loss of the lateral support to which he alleged he was entitled, by the pulling down of No. 62, Stamford Hill, the next house.

The plaintiff gave evidence to the effect that the profits in his business amounted to 6*l.* 10s. a week, and that in October last the defendant pulled down the next house, the result of which was that the wooden partition between the two houses was broken, upon which the rain poured into his house and practically swamped it, and in consequence of which he was obliged to leave.

In cross-examination he said that the premises were much shaken and damaged, and became unfit for human habitation. He had claimed 50*l.* for the damage done to his furniture, and 12*l.* for its removal, but it had been removed a month before No. 62 was pulled down to avoid an execution. He had refused an offer of 55*l.* from the defendant's solicitors, who also acted for the landlord, and had promised one of his creditors to pay him with the damages he would get in the action.

Messrs. B. N. Southall and R. M. Hiscocks, architects and surveyors, said that, in their opinion, the removal of No. 62 had deprived No. 60 of its lateral support, and had endangered the building generally.

Mr. Heyworth, the defendant, was called, and stated that he acquired the lease of No. 62, and sold it to a Mr. Bright, "a house-breaker," to pull down. He told him to be sure not to touch the party-wall, and that the new house was to be built 7 ft. from it.

Mr. Bright said that the defendant warned him not to touch the party-wall, and he did not do so.

Messrs. J. Hamilton and J. Payne, architects and surveyors, gave evidence as to the plaintiff's house not deriving any support from the defendant's house, and that it, therefore, did not lose any.

At the conclusion of the evidence and the arguments of counsel, his Lordship, in giving judgment, said that there had been a great exaggeration on the plaintiff's part. He could find no evidence of any interference with the plaintiff's right of support. The mere fact that part of his outer wall was now exposed to the weather instead of being the defendant's inner wall, could not give the plaintiff any cause of action, nor could he see any evidence of any loss sustained by him. The defendant would not be liable for Mr. Bright's trespass, if he committed one, but that was a matter which it was not necessary for him to decide. In these circumstances there would be judgment for the defendant, with costs.

Judgment accordingly.

Mr. E. A. Swan appeared as counsel for the plaintiff, and Mr. Forbes Lankester for the defendant.

ACTION TO RESTRAIN INTERFERENCE WITH ANCIENT LIGHTS.

THE case of Sheen *v.* Diamond came before Mr. Justice Romer in the Chancery Division on the 24th and 25th ult., it being an action brought by Mr. James Sheen, the owner of some stables, workshops, and premises, known as Nos. 244 and 246, Brick-lane, Bethnal Green, for the term of twenty-six years unexpired, and he claimed against the defendant:—

(1.) A declaration that a certain brick wall dividing his premises (Nos. 244 and 246 Brick-lane), from the defendant's premises, No. 248 Brick-lane, belonged to him.

(2.) An injunction to restrain the defendant, his agents, servants, &c., from using or trespassing on the said wall, and from placing in staging or any other thing on or over the said wall or any part thereof on or any other part of the plaintiff's premises.

(3.) A Mandatory Injunction commanding the defendant to take down and remove all staging or other things affixed by him on or over the said wall or any part thereof.

(4.) An Injunction restraining the defendant, his agents, &c., from preventing or hindering the access of light and air to the plaintiff's windows or any of them.

(5.) A Mandatory Injunction commanding the defendant to take down and remove all such timber and other things erected by him which prevented or interfered with the access of light to the plaintiff's windows, or any of them.

There was also a claim for damages.

The defence was a general denial of the allegations contained in the statement of claim.

After hearing a mass of conflicting evidence, his Lordship found as a fact that the windows of the plaintiff's building were ancient lights, and that at the time the action was brought the lights of two of the windows were interfered with by the defendants by the timber. Since that time the interference had ceased, but under the circumstances, seeing that the plaintiff's case was entirely challenged, and his rights to those lights challenged, the plaintiff was entitled to an injunction to restrain the defendant from erecting timber on his premises so as to interfere with the plaintiff's ancient lights. He thought that the costs of the action, so far as the action was one seeking relief in respect of ancient lights, would have to be paid by the defendant, and he made a declaration that the wall was not the plaintiff's property, as claimed by him. His Lordship also said that the Court did not think fit to grant the plaintiff any other relief but that mentioned. The rest of the action would be dismissed, and the two sets of costs set off one against the other.

IMPORTANT POINT UNDER THE METROPOLIS MANAGEMENT ACT.

THE case of Lavy and Another *v.* the London County Council came before a Divisional Court of the Queen's Bench, composed of Justices Day and Wright, on the 1st inst.

Mr. H. F. Dickens, Q.C., and Mr. R. C. Glen appeared as counsel for the appellants, and Mr. Channell, Q.C., and Mr. Daldy for the respondents (the London County Council).

Mr. Dickens said that the case came before the Court on an appeal by way of special case from the decision of Mr. Horace Smith, the magistrate at the Clerkenwell Police-court, who had ordered a certain wall to be pulled down. The complaint against the appellants was that they had erected a certain structure beyond the general line of buildings in the City-road, the proceedings being taken under the Metropolis Management Act, 1862. He said that the appellants were the owners of a dwelling-house in the City-road, 38 ft. from the footway, there being a forecourt which had been bounded for many years by a brick wall 2 ft. or 3 ft. high, 9 in. thick, and with stone copings and iron railings 5 ft. 6 in. in height. Applications had been made by the appellants from time to time to build on the forecourt, but those applications had always been refused. A hoarding was erected on the dwarf wall against the railings for advertising purposes, and on February 13, 1894, the County Council gave the appellants notice to remove the hoarding under Section 13 of the Act of 1882 which deals with temporary structures, and it was removed and replaced by a wall 11 ft. high and 14 in. thick, which was the erection complained of. On July 11 a summons was taken out which was made returnable on July 24. The Architect of the County

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Market, Town Hall, Offices, &c.	Lynton U.D.C.	10l. 10s.	May 27

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Wesleyan Chapel, Gooderston, near King's Lynn	R. Harwin		May 7
Residence, Woolacombe, North Devon		W. C. Oliver	do.
*Pipe Sewers, &c.	Willesden Dist. Coun.	O. Claude Robson	do.
Schools, Poplar-road	Wrexham National School Managers	J. Morison & Son	do.
Alterations, &c. Gwendraeth School	Llanelly School Board	J. B. Morgan	do.
Mission Room, Pett Bottom, near Canterbury	Trustees	J. Field	do.
Surveyors' Materials	Church (Lancs) U.D.C.	W. Stirrup	do.
Pipe Sewers	Cleckheaton (Yorks) U.D.C.	J. C. Haller	do.
Drainage Works, Mount Vernon, Liberton, N.B.		G. Gordon & Son	do.
Stoneware Pipe Sewer, Pontcanna	Llandaff & Dinas Powis R.D.C.	W. Fraser	do.
Drainage, Pureyend, Northants	Potterspury R.D.C.	*Official*	do.
Road and Bridge, Hallroyd, Todmorden	Lancs. & Yorks. R. Co.	do.	do.
Paving, &c. Cambridge-street	Castleford (Yorks.) U.D.C.	do.	May 8
New Roads, Bohola, &c. Toocanagh	Congested Districts Board of Ireland	do.	do
Road Works, Talbot-road, &c. near Wigan	Abram D C	Heaton & Ralph	do.
Bridge over the Burn	Tillicoultry(N.B.)Police Commrs.	Buchanan & Bennett	do.
Eight Houses, Penton-street, Mirfield, Yorks		A. A. Stott	do.
Three Houses, Buttershaw, near Bradford		Abm. Sharp	do.
Road Materials (Granite, Gravel, and Slag), Wisbech St. Mary		Jno. Peck	do.
Pipe Laying (500 yards), Ackworth	Hemsworth R.D.C.	Mr. Richardson	May 9
Cast-iron Water Mains, &c	Hertford Corporation	T. R. Dickinson	do.
Water Supply at Workhouse	Blandford (Dorset) Union	C. Hunt	do.
Sewerage Works, Cronywell, Medomsley	Lanchester R.D.C.	J. E. Parker	do.
Sewage Purification Works (8,640 yds.), near Stockport	Reddish D.C.	T. S. McCallum	do.
Roadmaking, Turner-street, &c. near Blyth, Northumberland	Cowpen U.D.C.	R. Grieves	do.
Road Improvements, Ferndale, Glam.	Ystradyfodwg U.D.C.	W. J. Jones	do.
Extension of Primitive Methodist Chapel, Drighlington, Yorks.		T. A. Buttery	do.
Bridge and Approaches, Harlyn Bay, Cornwall	St. Columb R.D.C.	Jenkin & Son	do.
Engine House, Tanks, &c. Colne, Lancs.	Foulridge Parish Coun.	H. Holgate	do.
*Cast-iron Water Mains, &c.	Hertford Corporation	T. R Dickinson	do.
Block Paving, King-street	Cork Town Council	*Official*	do.
Materials for Landing Stage, New North Quay, Jersey	St Helier's Harbour Board	do.	May 10
Cast-iron Pipes and Laying, near Barnsley	Stainbrough Parish Council	do.	do.
Whinstone Road Metal (1,200 tons)	Great Driffield (Yorks) U D.C.	do.	do.
*Well Boring	Lewisham Public Baths Commrs.	do.	do.
Roadmaking, Maygrove-place	Great Yarmouth U.S.A	J. W. Cockrill	do.
Infirmary, Griffithstown	Pontypool Union	E. A. Lansdowne	do.
School, Offices, House, &c.	Bosham (Sussex) Sch. Board	N. C. H. Nisbett	do.
Five Cottages, Crossgate, Thornhill, near Dewsbury		J. C. Haller	do.
House, Pickering-road, Parkwood Springs	Sheffield Gas Co.	C. Hadfield	May 11
House, Chapel, Bassenthwaite, Cumberland			do.
Schools, St. Mabyn, Cornwall	F. Waite		do.
Additions, &c. to Farm, Lesson Hall, near Wigton	J. J. T. Andrew		do.
Reservoir (90,000 Gallons) and Pipes, Rishworth, Halifax		J. M. Richardson & Son	do.
Bridge Work, over River Bogie, near Aberdeen	Trustees of Wheelwright's Charity	Horsfall & Williams	do.
Church, &c. Ystrad Rhondda, Ystradyfodwg, Glam.	Huntley Coms. of Police, &c.	Jas. Barron	do.
Cottages, Murton Colliery, near Sunderland	The Vicar	E. M. Bruce Vaughan	do.
Church Schools, Corton, near Lowestoft	South Hetton Coal Co. Lim.		May 13
		Bottle & Olley	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered
Sewerage Works, Crawcrook	Ryton-on-Tyne U.D.C.	J. P. Dalton	May 13
Brickwork Sewers	Stockport Corp.	A. M. Fowler	do.
Sewage Disposal Works, &c.	Rawdon (Yorks) U.D.C.	W. H. Badford	do.
*Accident Ward	Merthyr and Dowlais Gen. Hospital	Wakeling & Mackay	do.
Blue Brick Paving and Edging	Melksham (Wilts) U.D.C.	E. Gunstone	May 14
Limestone Asphalte (12,000 yards)	Walsall Corp.	*Official*	do.
Surveyors' Materials, Alnwick	Glendale R D.C.	do.	do.
*Engine House, Boiler House, &c.	Brighton Town Coun.	F. J. C. May	do.
Pier, Scarfskerry, Dunnet, nr Thurso, N.B.	Caithness C. C.	Jas. Barron	May 15
Technical School, Whittaker-street	Radcliffe (Lancs)U.D.C.	E. Grundy	do.
Police Station, Knockholt	Kent C. C.	F. W. Ruck	do.
*Broken Granite and Slag	Spilsby R.D.C.	*Official*	do.
*Supply of Horses	St. Saviour's Board of Works	G. R. Norriah	do.
*Bass Brooms and Brushes for Sweeping Machines	do.	do.	do.
Church Room, Leyburn	Wm. Bell		May 16
*Pipe Sewers, &c. Making-up Roads, &c.	Cromer U.D.C.	A. F. Scott	do.
Rebuilding Palmer's Bridge, Cullompton	Devon C. C.	*Official*	do.
*Construction of Shelter	St. Marylebone Vestry	do.	do.
Drainage of Workhouse, &c.	Easingwold Union	do.	May 17
*Sewerage Works	Barrow - upon - Soar R.D.C.	J. B. Everard	do.
Forming, Paving, Flagging, &c. Several Streets	Bury (Lancs.) Corp.	*Official*	May 18
School and House, Upper Lloyd-street	Moss Side (Lancs.) Sch. Bd.	Woodhouse & Willoughby	do.
Alterations, &c. Stable, Nansavallan, Kea, Cornwall	Geo. Gow		do.
Union Offices, Townhead	Rochdale Union	Butterworth & Duncan	May 20
Sewerage Works, near Burnley	Barrowford U.D.C.	J. T. Landless	do.
Cast-Iron Socket Pipes (2,800 tons)	Gloucester Corp.	W. Fox	May 21
Service Reservoir, &c.	do.	do.	do.
Additions, &c. Fernhill-yard	Bury (Lancs.) Corp.	*Official*	do.
*Sorting Office, Barnes	Coms. of H. M. Works	do.	do.
Cemetery Work	Tunbridge Wells Corp.	do.	May 22
Paving, Kerbing, &c. Several Streets	Melton Mowbray U.D.C.	E. Jeeves	do.
Unbroken Road Metal	Canterbury T. C.	A. H. Campbell	May 23
*New Laundry, Machinery, &c.	Mile End Old Town Guardians	C. F. Burden	do.
*Erection of New Laundry	do.	do.	do.
*New Schools, Residence, &c.	Gt. Bentley Sch. Bd.	J. W. Start	do.
*Waterworks	Suffolk County Asylum	G. & F. W. Hodson	May 24
*Waterworks Extension	Bishop's Stortford U.D.C.	*Official*	May 25
*Alterations, Naah Lighthouses, near Bridgend	Trinity House	do.	May 27
*Erection of Schools	Swindon School Board	N. Drew	do.
*Stable Fittings, Provender Machinery	Boro' of West Ham	L. Angell	May 28
Additions to Asylum, &c. Wadsley, Yorks.	W.R.C.C.	J. V. Edwards	June 7
*Painting Works, Woolwich District	War Department	*Official*	No date
*Painting Works, North Aldershot District	do.	do.	do.
Granite and Slag Road Metal (19,000 tons)	Brigg R.D.C.	do.	do.
Concrete Flags for Footpaths	Manchester Corp.	do.	do.
Rebuilding George and Dragon Hotel, Wingate, co. Durham	A. Emmerson, Jun.	B. F. Simpson	do.
Almshouses, Walls, &c. Hunslet, Leeds	Trus. of late J. Scott	J. E. Leak	do.
Schools, Rooms, Vestry, &c. New Shildon, Durham	Primitive Methodist Trustees	J. W. Taylor	do.
New Roads, West End Park Estate, Harrogate	Knaresborough & Claro Banking Co. Lim.	H. E. & A. Bown	do.
Thirteen Storage Warehouses, Ship Canal Dock	Manchester Ship Canal Warehousing Co.	C. Heathcote	do.
Residence, King's Court, co. Cavan	Edwd. Synge		do.
Additions, &c. to Baptist Chapel, Old King-street, Bristol		H. J. Jones	do.
Lecture Hall and School, Consett, Durham		Armstrong & Knowles	do.
Eight Houses, Otley, Leeds		Fairbank & Wall	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
Clerk of Works	Conway Town Council	2l. per week	May 8
Surveyor, &c.	Grange - over - Sands U.D C.	130l.	May 9
Road Surveyor	Norfolk C. C.	129l.	May 11
District Surveyor	Derbyshire C. C.	160l.	May 13
*Surveyor	Lexden and Winstree R.D.C.	150l.	May 15
*County Surveyorship (Ireland)	Civil Service Com.		May 22

Those marked with an asterisk (*) are advertised in this Number. *Competition, p.* iv. *Contracts, pp.* iv., vi., viii., *and* xxiii. *Public Appointments, p.* xx.

Council gave his decision under Section 75 of the Act as to what the building line was on July 13, and that decision was appealed against and affirmed in the following October. The magistrate adjourned the hearing of the summons, which was made returnable before him on July 24, till after the appeal from the decision of the architect had been disposed of. Mr. Dickens contended that there was no final decision as to the general line of buildings at the time the summons was made returnable before the magistrate, and that he ought to have dismissed it. He further contended that the wall in question was not a "structure" within the meaning of the Act.

Their Lordships, without calling upon counsel for the respondents, said that there was nothing in the points which had been raised by the appellants, affirmed the decision of the learned magistrate, and dismissed the appeal with costs.

Leave to appeal was given.

CAPITAL AND LABOUR.

THE LONDON BUILDING TRADE.—A meeting of the Central Association of Master Builders was held at their offices in Bedford-street on Thursday in last week, to consider the position with regard to the termination of the code of working rules which governs the building trades. After a prolonged discussion it was resolved to continue the working rules for a time in order that an arbitrator might be appointed to decide upon the points of difference, the arbitrator to be appointed before June 1.—Meetings were held in the Metropolis on the 28th ult. at Notting Hill, Wood Green, Wandsworth, the Borough, Deptford Broadway, and East India Dock Gates, in support of the policy adopted by the Building Trades Federation over the new working rules proposed by the Master Builders' Association, and which led to the existing dispute in the trade. The demonstrating societies were the United Builders' Labourers' Union, the Navvies', Bricklayers' Labourers, and General Labourers' Union, the General Labourers' Amalgamated Union, the Gas Workers and General Labourers' Union, and the United Order of General Labourers. At all of the meetings the speakers expressed strong approval of the course that had been pursued by the Federation during the negotiations with the masters, and declared that the men could never accept the rules relating to piecework and the employment of non-union labour. Resolutions were passed, pledging the societies in question to support the federation in any future action it might take in the matter.

PLASTERERS' STRIKE AT ABERDEEN.—This strike is now ended, the workmen's union having accepted a rise of ½d. per hour in the wages, on condition that three months' previous notice be given of any change. The men have recommenced work. There is a large amount of arrears to overtake, and the number of plans of buildings lodged with the Town Council for approval of the lines, levels, &c., continues to increase remarkably for a city of the population of Aberdeen.

THE BRICKLAYERS' STRIKE AT FELIXSTOWE.—The strike of bricklayers at Felixstowe has terminated, an arrangement having been arrived at between the masters and men. It has been agreed, with a few alterations and exceptions, to adopt the rules agreed on between the master-builders and the operative bricklayers of Ipswich.

STRIKE OF BRICKLAYERS' LABOURERS AT LOUGHBOROUGH.—Between eighty and ninety labourers have come out on strike at Loughborough, the masters having refused to concede their demand for an extra 1d. per hour. There appears to be no hindrance, so far as trade union rules go, to the bricklayers working with non-society labourers.

JOINERS' STRIKE, LEEDS.—At a mass meeting of the members of the Leeds Branch of the Amalgamated Society of Carpenters and Joiners, held on the 29th ult., it was resolved to strike, the Masters' Association having declined to accede to their demand. The men, who are paid at the rate of 8d. per hour, originally asked that their wages should be increased to 9d. per hour, and that the working week in winter should be reduced from fifty to forty-four hours. The employers offered to pay 8½d., and that the time-sheet of the bricklayers should apply to carpenters and joiners. These terms the men rejected. They adhered to their proposal with regard to the winter hours, but in order that the way might be paved for an amicable settlement, they expressed their willingness to accept 8½d. per hour. They point to the fact that the rate of wages in Leeds is much below that which prevails in many large towns. A number of firms have signified their intention of granting the demands of the men, pending a settlement, and their *employés*, numbering from 150 to 200, will not

leave work. The Leeds branch has about 800 members, so that fully 600 men will come out on strike.

MEETINGS.

FRIDAY, MAY 3.

Institute of Junior Engineers. — Mr. Ernest King and Mr. Kenneth Gray on "The Warming of Buildings by Hot Water." 8 p.m.

Sanitary Inspectors' Association.—Deputation to Local Government Board on Examination Question. 3.30 p.m.

SATURDAY, MAY 4.

Sanitary Inspectors' Association.—Mr. J. Young on "The Dwelling-house from a Sanitary Point of View." Carpenters' Hall.

MONDAY, MAY 6.

Royal Institute of British Architects.—Annual general meeting. 8 p.m.

Society of Arts (Cantor Lectures). — Mr. James Douglas on "Recent American Methods and Appliances employed in the Metallurgy of Copper, Lead, Gold, and Silver." III. 8 p.m.

Society of Engineers.—Mr. Charles Mason on "Street Subways for large Towns." 7.30 p.m.

Liverpool Architectural Society.—Annual general meeting. Closing address by the President, Mr. H. Hartley. 7 p.m.

Glasgow Architectural Association.—Mr. D. B. Dobson on "Decorated Gothic." 8 p.m.

TUESDAY, MAY 7.

Society of Arts (Applied Art Section).—Mr. Thomas Wardle on "Recent Improvements in Designing, Colouring, and the Manufacture of British Silks." 4 p.m.

WEDNESDAY, MAY 8.

Carpenters' Hall, London Wall (Lectures for shop and outdoor Foremen).—Mr. Thomas Blashill on "Shoring." 8 p.m.

Society of Arts.—Professor W. Chandler Roberts-Austen on "The Extraction of the Rarer Metals from their Oxides." 8 p.m.

Liverpool Engineering Society.—Annual General Meeting. Mr. J. Reney Smith on "Engineering Work and Operations at Perim Island." 8 p.m.

THURSDAY, MAY 9.

Institution of Electrical Engineers.—Mr. Mark H. Robinson on "The Recent Development of the Single Acting High Speed Engine for Central Station Work." 8 p.m.

Civil and Mechanical Engineers' Society. — Annual Dinner.

Society of Antiquaries.—8.30 p.m.

FRIDAY, MAY 10.

Architectural Association. — Mr. John Belcher on "Treillage." 7.30.

SATURDAY, MAY 11.

Edinburgh Architectural Association.—(1) Visit to the "Thomas Coat's Memorial Church," Paisley; (2) Visit to Paisley Abbey.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

APRIL 19.—By *Field & Sons* (at Margate): 198 to 216 (even), High-st., Margate, Kent, f., 1,890*l.*; 1 to 12, Florence-cottages, f., 2,315*l.*

APRIL 22.—By *J. F. Bland & Co.*: 43 and 51, Church-st., Lisson Grove, u.t. 26½ yrs., g.r. 12*l.* 10s., 745*l.*; 25 and 26, Little Church-st., u.t. 26½ yrs., g.r. 5*l.* 4s., 315*l.*; 32, Lisson-st., u.t. 24½ yrs., g.r. 16*l.*, 50*l.*; 146, Meyrick-rd., Clapham Junction, u.t. 55 yrs., g.r. 4*l.* 14s. 6d., 110*l.*—By *Alfred Thomas, Peyer, & Miles:* "Bell Inn," Sandy, Beds, f., r. 50*l.*, 2,700*l.*; "White Lion" Beerhouse, Eaton Sacon, and cottage adjoining, f., r. 12*l.*, 350*l.*; "Dewdrop Inn," St. Neots, Hunts, and four cottages adjoining, f., r. 32*l.* 10s., 600*l.*; "Globe" beerhouse, f., r. 10*l.*, 950*l.*; "Cambridgeshire Hunter," Eynesbury, and cottage adjoining, c., r. 15*l.*, 850*l.*; "Golden Eagle" beerhouse, Biggleswade, Beds., c., r. 12*l.*, 500*l.*; "Rose and Crown" beerhouse, Wilden, and four tenements, f., r. 16*l.* 18s., 325*l.*—By *Field & Sons:* L.g.r. of 60*l.* 10s., Fairlawn Pk., Sydenham, u.t. 66 yrs., r. 100*l.*; 165 and 167, Abbey-st., Bermondsey, and 1, 2, and 3, Druid-st., u.t. 7½ yrs., g.r. 14*l.*, 5*l.*; 19, Hickman's Folly, and 85, Oxley-st., u.t. 10½ yrs., g.r. 4*l.*, 5*l.*; 47, St. James's-rd., f., r. 33*l.* 16s., 335*l.*; 40, Marine-st., and 9 and 10, Frederick's-pl., f., r. 33*l.* 14s., 310*l.*; 76, 78, 80, and 82, Jamaica-rd., u.t. 6½ yrs., g.r. 96*l.*, r. 165*l.*, 145*l.*; 44, Spa-rd., u.t. 21 yrs., g.r. 3*l.*, r. 26*l.*, 80*l.*; 30 and 31, East-lane, u.t. 80 yrs., g.r. 12*l.* 12s., r. 62*l.* 8s., 400*l.*; 171, Southwark-pk-rd., u.t. 29 yrs., g.r. 4*l.*, r. 39*l.* 25o*l.*; 12, Trothy-rd., u.t. 45 yrs., g.r. 5*l.*, r. 33*l.* 16s., 250*l.*; 44 and 46, Neate-st. Camberwell, u.t. 28 yrs., g.r. 8*l.*, r. 62*l.* 8s., 295*l.*; 6 and 7, Victoria-pl., u.t. 41 yrs., g.r. 9*l.*, r. 54*l.* 12s., 200*l.*; 102 and 104, Sumner-rd., Peckham, u.t. 68 yrs., g.r. 5*l.* 10s., r. 59*l.* 16s., 450*l.*; 30, 32, 34 and 36, Briant-st., New Cross, u.t. 70¾ yrs., g.r. 16*l.* 16s., r. 93*l.* 12s., 430*l.*—By *L. V. Cooper & Co:* 29, 31, 41 and 43, Ely-rd., Norwood, f., r. 52*l.*, 430*l.*

APRIL 23.—By *S. B. Clark & Son:* 34, Alfred-pl., Bedford-sq., u.t. 9 yrs., g.r. 8*l.* 16s. 6d., r. 90*l.*, 360*l.*—By *E. & H. Lumley:* 56, Redcliffe-sq., South Kensington, u.t. 68¾ yrs., g.r. 50*l.*, 760*l.*; 7, Philbeach-gardens, u.t. 80 yrs., g.r. 18*l.*, 650*l.*—By *Bean, Burnett, & Eldridge:* F.g.r. of 84*l.*, Kylemore-rd., Hampstead, reversion in 91 yrs., 2,400*l.*; 29, High-st., Hornsey, f., r. 55*l.*, 900*l.*; 27, High-st., f., 890*l.*; 25, High-st., f., r. 60*l.*, 1,000*l.*; "Oaklands," West Hill-rd., Putney, f., r. 60*l.*, 750*l.*—By *Debenham, Tewson, & Co.:* 119, Albany-st., Regent's-pk., u.t. 20½ yrs., g.r. 15*l.*, 340*l.*; 71, George-st., Hampstead-rd., and 115, Euston-st., u.t. 24½ yrs., g.r. 21*l.*, r. 127*l.* 8s., 350*l.*

[*Contractions used in these Lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G.	ton	8/0/0 — 0/0/0
Teak, E.I.	load	10/0/0 — 16/0/0
Sequoia, U.S. ft. cu		1/10 — 2/2
Ash, Canada	load	2/15/0 — 4/0/0
Birch, do.		2/15/0 — 4/0/0
Elm, do.		3/10/0 — 4/15/0
Fir, Dantsic, &c.		2/15/0 — 3/10/0
Oak, do.		2/15/0 — 4/15/0
Canada		5/10/0 — 7/0/0
Pine, Canada red		2/15/0 — 3/5/0
Do. Yellow		3/5/0 — 5/10/0
Lath, Dantsic, fath		4/10/0 — 5/10/0
St. Petersburg.		5/0/0 — 6/10/0
Wainscot, Riga, &c., log		3/0/0 — 5/5/0
Odessa, crown		3/0/0 — 5/5/0
Deals, Finland		
2nd & 1st std	100	7/0/0 — 8/10/0
Do. 4th & 3rd		7/0/0 — 8/0/0
Do. Riga		7/0/0 — 8/0/0
St. Petersburg, 1st yellow		9/10/0 — 12/0/0
Do. 2nd yellow		7/10/0 — 9/0/0
Do. white		8/0/0 — 9/10/0
Swedish		7/0/0 — 15/10/0
White Sea		7/10/0 — 15/0/0
Canada, Pine 1st		21/0/0 — 24/10/0
Do. do. 2nd		16/10/0 — 17/10/0
Do. do. 3rd, &c.		8/0/0 — 10/5/0
Do. Spruce, 1st		8/10/0 — 10/0/0
Do. do. 3rd and 2nd		6/10/0 — 7/5/0
New Brunswick		6/0/0 — 7/0/0
Battens, all kinds		5/0/0 — 21/0/0
Flooring boards, sq., 1 in. prep. 1st		0/9/0 — 0/14/0
Do. 2nd		0/6/6 — 0/11/0
Other qualities		0/4/6 — 0/7/0
Cedar, Cuba	ft.	/3 — /4
Honduras, &c.		/3 — /4½
Mahogany, Cuba		/3½ — /6
St. Domingo, cargo av.		/3½ — 1/0
Mexican do. do.		/3 — /4
Tobasco do. do.		/3½ — /6
Honduras do.		/3½ — /5½
Box, Turkey	ton	4/0/0 — 15/0/0
Rose, Rio		7/0/0 — 16/0/0
Bahia		6/0/0 — 25/0/0
Satin, St. Domingo		0/0/5 — 0/1/0

TIMBER *(continued)*.		
Satin, Porto Rico		0/0/6 — 0/1/6
Walnut, Italian		0/0/3½ — 0/0/7

METALS.		
Iron—Pig, in Scotland	ton	2/3/3 — 0/0/0
Bar, Welsh, in London		5/12/6 — 5/15/0
Do. do. at works in Wales		5/2/6 — 5/5/0
Do. Staffordshire, in London		6/0/0 — 6/10/0
COPPER—British cake and ingot		43/10/0 — 44/0/0
Best selected		44/5/0 — 44/15/0
Sheets, strong		51/0/0 — 0/0/0
Chili bars		40/18/9 — 41/3/9
YELLOW METAL	lb	0/0/4½ — 0/0/4¾
LEAD—Pig, Spanish	ton	9/17/6 — 9/18/9
English com. brands		10/0/0 — 10/2/6
Sheet, English, 6 lbs. per sq. ft. and upwards		10/15/0 — 11/0/0
Pipe		11/15/0 — 0/0/0
ZINC—English sheet	ton	18/10/0 — 19/0/0
Vieille Montagne		19/10/0 — 0/0/0
TIN—Straits		63/17/6 — 64/7/6
Australian		64/15/0 — 65/5/0
English Ingots		67/10/0 — 68/0/0
Banca		65/0/0 — 65/5/0
Billiton		64/10/0 — 64/15/0

OILS.		
Linseed	ton	19/15/0 — 20/5/0
Cocoanut, Cochin		24/15/0 — 25/0/0
Do. Ceylon		23/0/0 — 0/0/0
Palm, Lagos		23/0/0 — 0/0/0
Rapeseed, English pale		22/10/0 — 0/0/0
Do. brown		21/0/0 — 0/0/0
Cottonseed ref.		18/0/0 — 19/0/0
Oleine		20/10/0 — 21/10/0
Lubricating, U.S.		4/0/0 — 5/0/0
Do. refined		5/0/0 — 12/0/0
TAR—Stockholm	barrel	1/1/0 — 1/1/6
Archangel		0/15/6 — 0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.*]

ABERDEEN.—For additions, &c., to public school at Inverurie. Messrs. Ellis & Wilson, architects, 181a, Union-street, Aberdeen. Quantities by architects:—

Masonry.—Wm. Lander	£594 0 0
Carpentry.—James Milne	456 10 0
Slating.—Wm. Milne	70 0 0
Plastering.—Seivewright	99 11 0
Plumbing.—Jas. Lang & Son	92 19 0
Painting.—James Godsman	22 6 9
Total	£1,335 6 9

[All of Inverurie.]

BALDOCK.—For malting for Messrs. J. R. Page & Son. Messrs. Arthur Kinder & Son, architects, Suffolk House, Lawrence Pountney-hill, Cannon-street, London, E.C. Quantities by Mr. Alexander H. Kinder, 23, Finsbury-circus, London, E.C.:—

Miskin	£5,142	Spencer	£4,400
Kidman	4,948	S. Foster	4,305
Jacklin & Co.	4,881	H. Wall & Co.	4,249
Warboys	4,698	Willmott & Sons	4,183
G. E. Wallis & Sons	4,594	Matthew Foster, Hitchin (accepted)	3,932
Redhouse	4,492		

BELFAST. — For the construction of outfall sewer works, Donegall Park, for Mr. R. Dunlop. Mr. J. H. H. Swiney, C.E., 83, Royal-avenue, Belfast:—

John Graham	£561 16 6	Michael Green, 244, York-street*	£359 0 0
Jas. Ross & Son	405 0 0		
James McLamon	358 0 0		

* Accepted.

BLANDFORD.—For malting and cellar for Messrs. Hall & Woodhouse. Messrs. Arthur Kinder & Son, architects, Suffolk House, Lawrence Pountney-hill, Cannon-street, London, E.C. Quantities by Mr. Alexander H. Kinder, 23, Finsbury Circus, E.C.:—

Norman Bros.	£4,706 3 10	A. H. Green	£3,750 0 0
W. J. Chinchin	5,580 0 0	G. E. Wallis & Sons	3,744 0 0
Clarke & Co.	4,072 0 0	D. Hitchings	3,545 5 9
Jenkins & Sons	3,784 0 0		

BLAYDON-ON-TYNE.—Accepted for laying 1,540 yards pipe sewers, for the Urban District Council. Mr. W. S. Simpson, surveyor, Tyne-street, Blaydon:—

Wm. Carr, Tyne View Terrace, Helham £1,664 18 1

BRAINTREE (Essex).—For the erection of new vagrant wards, receiving wards, Board and Committee-rooms. Mr. F. Whitmore, architect, 17, Duke-street, Chelmsford. Quantities by Mr. J. Sydney Parmenter, Braintree:—

White & Sons	£4,089 0	Smith & Sons	£3,220 0
Alfred Diss	3,343 0	Girling & Coe	3,197 0
F. Johnson	3,291 13	Baynes, Badcock, & Co.	3,155 0
G. E. Hawes	3,290 0	Ernest West	3,285 0
Everett & Sons	3,250 0	Alf. Brown, Braintree*	2,995 0
Saml. Parmenter	3,240 0	Kerridge & Shaw	2,994 0

[Architect's estimate, £3,250.]

* Accepted.

BRISTOL.—For the erection of a new shop in High-street, Staple Hill, for Mr. John Phipps, tailor and outfitter. Mr. W. Holbrow, surveyor, 6, St. Stephen's-avenue, Bristol:—

Love & Wait	£560	E. Hill	£445
Edwards Bros.	499	F. Prosser	429
E. Clark	495		

[F. Prosser's amended tender (accepted) £330.]

BRISTOL.—For additions to the premises of Messrs. R. W. Ashley & Son, boot manufacturers, Portland-square, Mr. W. Holbrow, surveyor, 6, St. Stephen's-avenue, Bristol:—

Nichols	£427 0	Cowlen & Son	£373 0
R. Wilkins & Son	389 0	Love & Wait	360 0
E. Clark	385 0	H. J. Rossiter (accepted)	357 10

CHYANDOUR (Cornwall).—For the erection of a police-station, for the County Council. Mr. Oliver Caldwell, architect, Victoria-square, Penzance:—

A. Carkeek	£1,545	T. James	£1,005
W. Stephens	1,497	A. Trythall	987
J. Nicholls	1,082	W. H. Trounson	968
J. Odgers	1,048	George Miners, Marazion*	915

* Accepted.

DARENTH (Kent).—For the erection of school buildings, near Green-street Green, for the School Board. Mr. F. M. Kirby, architect, Galley-hill, Swanscombe. Quantities by architect:—

C. Miskin	£1,790 0	J. Trueman	£1,625 0
Young & Lonsdale	1,713 0	Multon & Wallis	1,499 0
H. J. Carter	1,700 0	J. Wilford, Snodland, Kent*	1,399 10
T. D. Graty	1,699 0		
H. Somerford & Son	1,632 0		

* Accepted.

EAST MALLING (Kent).—For the erection of buildings, &c., for the isolation hospital, The Rocks, for the Rural District Council. Mr. John Ladds, architect, 7, Doughty-street, Mecklenbourgh-square, W.C. Quantities by Mr. Alfred Boxall, 6, John-street, Adelphi, W.C.:—

W. Coker	£6,417 0 0	R. Landridge	£4,443 9 4
Mancktelow Bros.	5,492 0 0	T. J. Barden	4,400 0 0
M. Batchelor	4,656 8 4	Joshua Wilford	4,300 10 0
T. Webb	4,578 0 0	Cox Bros.	4,290 0 0
T. Butterick	4,558 0 0	G. E. Wallis & Sons	4,237 0 0
Willmott & Sons	4,536 0 0	R. Avard	4,150 0 0
W. H. Allchin	4,534 0 0	Pryer & Co.*	4,135 0 0

* Accepted.

GOSFORTH (Northumberland).—For additions to Newcastle City Asylum, Coxlodge, for the Visiting Committee. Mr. J. W. Dyson, architect, 18, Grainger-street, Newcastle-on-Tyne. Quantities by Mr. George Connell, 42, Grainger-street, Newcastle:—

W. C. Tyrie	£119,753	T. Lumsden	£117,000
John Ferguson	118,900	J. & W. Lowry	115,892
Jos. Elliott & Son	118,761	Saml. Warburton	113,333
A. Pringle	118,372	Walter Scott, Newcastle (accepted)	113,312
C. W. King	118,189		

HALESWORTH (Suffolk.).—For additions to school buildings, for the Managing Committee of the National Schools. Mr. Arthur Pells, architect, Beccles, Suffolk. Quantities by architect:—

J. W. Stannard	£208 10	George Martin & Son	£604 0
Cuttings & Son	488 0	S. G. Brock & Son	510 0
F. Woodyard	365 0	S. Howard & Sons	355 10

KENLEY.—Accepted for the erection of a new Police-station at Kenley for the Receiver for the Metropolitan Police District. Mr. John Butler, Architect. Quantities by Mr. W. H. Thurgood:—

J. O. Richardson, Albert Works, Peckham, S.E. £3,789

KETTERING.—Accepted for the construction of a service reservoir, Clover Hill Pumping Station, for the Waterworks Company. Mr. Thos. Hennell, C.E., 6, Delahay-street, Westminster, S.W.:—

William Cunliffe, Kingston-on-Thames (accepted)..£1,283 17

KIRKCALDY (N.B.).—For the construction of sewers, &c., for the Local Authority. Mr. J. L. Lumsden, Burgh Surveyor, Kirkcaldy:—

D. Whyte	£2,579 5 8	R. C. Brebner	£1,983 5 8
John Kennedy	2,310 8 10	L. & W. MacDonald	1,883 4 6
Geo. Smith & Son	2,300 0 0	Jas. Stevens	1,876 7 1
W. Carnagher	2,046 2 6	Mackay & Son, Stirling*	1,841 4 6
John Martin	1,997 7 2		
A. Gray & Co.	1,987 19 3		

* Accepted.

KIRKCALDY.—Accepted for the erection of shops, &c., High-street, for The White-house Estate Company, Limited. Mr. Robert Little, architect, 48, Townsend-place, Kirkcaldy. Quantities by the architect:—

Masonry.—Geo. Smith & Sons, Kirkcaldy	£3,445 0 0
Joinery.—Scott & Co., Kirkcaldy	3,034 0 0
Plumbing.—John Torrance, Kirkcaldy	679 0 0
Slating.—Alex. Ferguson, Kirkcaldy	230 13 5
Plastering.—William Ure, Dunfermline	480 11 10
Iron work.—P. and W. McLellan, Glasgow	385 0 0

KNAYTON.—Accepted for the erection of Wesleyan Chapel and class-room, at Knayton, near Thirsk, Yorkshire. Mr. Thomas Stokes, architect, Thirsk. Quantities by the architect:—

Bricklaying, Masonry, and Plastering.—G. R. Manfield, Thirsk *Joinery.*—J. W. & J. D. Ruecroft, Thirsk *Plumbing and Glazing.*—J. W. Jackson, Thirsk *Slating.*—W. Dodgson, Thirsk *Painting.*—Jas. Rutherford, Thirsk *Smith.*—J. & S. Watson, Thirsk	£385

LAVERTON.—Accepted for the erection of Wesleyan Chapel and School at Laverton, near Ripon, Yorkshire. Mr. Thomas Stokes, architect, Thirsk. Quantities by the architect:—

Masonry and Plastering.—John W. Hall, Kirkby Malyeard *Joinery.*—Thomas Richmond, Kirkby Malyeard, Ripon *Plumbing and Glazing.*—H. Dalton, Ripon *Slating.*—Baynes & Rawe, Ripon *Painting.*—W. T. Wilson, Kirkby Malyeard, Ripon	£575

LONDON.—For alterations to house in Holborn, for Mr. H. Finch. Mr. J. T. Lawrence, architect, Leighton Buzzard, Beds.:—

Josolyn & Young	£179	Perkins & Co.	£130

LONDON.—For alterations and additions at the North Star Hotel, Finchley-road, N.W., for Mr. J. T. Vincent. Mr. Albert E. Pridmore, architect, 2, Broad-street Buildings, E.C. Quantities prepared by Mr. K. J. Stamp:—

London & Co.	£2,398	Drew & Cadman	£2,132
Marchant & Hirst	2,283	Courtney & Fairbairn	1,833
Davenport	2,170	S. R. Lamble (accepted)	1,749
Gould & Brand	2,146		

LONDON.—For the erection of seven shops and houses, Chiswick. Messrs. F. & W. Stocker, surveyors, 90 and 91, Queen-street, Cheapside, E.C.:—

T. Linfield	£6,976 0 0	A. G. McDowall	£5,825 0 0
J. Watt	6,640 0 0	G. R. Story	4,900 0 0
A. J. Shore	6,249 0 0	E. T. Garr, Chiswick (accepted)	4,755 9 6
C. King	6,250 0 0		

LONDON.—For the erection of a school on the Fircroft-road site, Tooting, to provide accommodation for 812 children; and for a manual training centre and a house for the schoolkeeper, with a laundry and cookery centre combined, for the School Board for London. Mr. T. J. Bailey, Architect:—

Atherton & Latta	£22,603	W. Downs	£19,679
Grover & Son	22,115	G. E. Wallis & Sons	19,586
Holliday & Greenwood	20,079	Stimpson & Co.	19,469
Lathey Bros.	20,048	E. Lawrance & Sons, Wharf-road, City-road*	19,102
Hart Bros.	20,036		
Holloway Bros.	19,914	W. Gregar & Son	18,758

* Recommended for acceptance by the Works Committee.

LONDON.—For erecting a new department for infants on the site in Waterloo-street, Hammersmith, to provide accommodation for 490 children and for carrying out works at the existing school, for the School Board for London. Mr. T. J. Bailey, architect:—

J. Shillitoe & Son	£12 230	Atherton & Latta	£10,950
Holliday & Greeenwood	11,604	J. Longley & Co.	10,807
W. Downs	11,420	B. E. Nightingale	10,798
Holloway Bros.	11,345	C. Cox	10,250
Lathey Bros.	11,273	E. Lawrance & Sons, Wharf-road, City-road*	10,154
R. A. Yerbury & Sons	11,112		

* Recommended for acceptance by the Works Committee.

LONDON.—For erecting and completion of residences, Lyndhurst-road, Child's Hill Park, for the proprietors, according to the drawings and supervision of Mr. George Carter, architect, 513, Holloway-road, N. No quantities:—

	No. 1 Tender.	No. 2. Tender.
R. D. Lowns & Sons	£1,330	£3,810
Budd & Co.	1,152	3,306
Kirby & Chase	1,140	3,360
H. Cattle	1,100	3,300
W. Wells	1,020	3,060
Architect's estimate	1,035	3,050

LONDON.—For the erection of additions and completion of Holy Trinity Church, Old Nichol-street, Shoreditch, for the Rev. A. O. M. Jay, M.A., vicar. Mr. Richard J. Lovell, architect, 46, Queen Victoria-street, E.C. Quantities by Mr. James Kennedy, 31, Great James-street, W.C.:—

Ivory	£3,820	Patman & Fotheringham	£3,573
Simpson & Sons	3,743	Colls & Sons	3,570
Clarke & Bracey	3,571	L. H. & R. Roberts	3,394

LONDON.—For the completion of a warehouse at Castle-street, Finsbury, E.C. Mr. Robert Hobden, architect. Quantities supplied:—

J. O. Richardson	£766	Brown	£696
Scrivener	762	Scottney	676

LONDON.—For the erection of warehouse in Minories. Mr. Charles Watkins, architect. No quantities supplied:—

Abrahams	£3,043	Downs	£2 815
J. O. Richardson	2,884	Monday & Son	2,462

LONDON.—For rebuilding No. 11, Charing Cross-road, W.C. Mr. Robert Willey, architect. Quantities supplied:—

Nye	£2,697	Rowe	£2 209
Durrant	2,634	Nightingale	2 205
Traies & Son	2,592	Foord & Son	2,162
Clarke & Bracey	2 595	Miller	2 146
Woodward & Co.	2 459	J. O. Richardson, Albert Works, Peckham, S.E.*	2,130
Holliday & Greenwood	2,345		

* Accepted.

LONDON.—For additions to St. Frideswide's Church, Poplar, E. Mr. Robert Willey, architect. No quantities supplied:—

		Roof.
Carmichael	£835	£35 0
J. O. Richardson	748	15 19
Kirby & Chase	745	15 0
Woodward & Co.	737	11 0
Tyerman	697	23 0

LONDON.—For the erection of a Mission Church at Bow Common-lane, E., for the trustees of the Re-organised Church of Latter Day Saints. Mr. J. Williams Dunford, architect, 1ccC, Queen Victoria-street, E.C.:—

A. G. Barton	£300	J. J. Smith & Co., Croydon*	£233

* Accepted.

LONDON. — For the erection of shops and furniture warehouse at Castle-hill, Ealing Dean, for Mr. J. Sanders, of Ealing Broadway. Mr. R. A. Came, architect:—

Diamond & Porter	£1,8 0	Scowen	£1,730
Nye	1,760	Loving	1,490

NOTTINGHAM.—For the erection of shops and offices, King-street and Long-row, for Mr. H. Buler. Messrs. Arthur Marshall & George Turner, architects, Cauldron-place, Long-row, Nottingham:—

J. Hutchinson	£6,945	F. Messom	£6,350
J. H. Vickers	6,570	T. Whittaker	6 300
A. B. Clarke	6,500	J. Hodson & Son	6,255
H. Scott & Son	6,420	W. Savage	6 2.0
J. Wheatley	6,420	T. Cuthbert	6,041
A. G. Bell	6,414	J. H. Thomas	5,877
H. Vickers	6,400	F. Evans	5 750
Dennett & Ingle	6 394	Dennet & Williamson	5,775
Gilbert & Gabbitass	6,382	T. Barlow (accepted)	5 689

[All of Nottingham]

PONTYPRIDD.—For the erection of three shops, &c., Taff-street, for Mr. Edgar Fennell. Mr. F. Gibson, architect, Midland Bank Buildings, Pontypridd. Quantities by the architect:—

Howell Powell	£1,644 9 8	Williams & James	£1 403 12 11
Williams & Co	1,589 0 0	Henry Morgan	1,382 0 0
Wm. Lessaman, jun.	1,528 0 0	Jones & Co.	1,276 0 0
Alfred Richards	1 502 0 0	J. C. Richards, Pontypridd (accepted)	1,235 0 0
Griffiths & Co.	1,492 3 9		

RUABON (Wales).—For the erection of a courthouse, for the County Council. Mr. R. Lloyd Williams, County Surveyor, Denbigh:—

Thomas Brown	£3,338	Gethin	£1,860
T. F. Jones	1,935	Jenkins & Jones	1,795
John Davies	1,894	Wm. Rogers, Wrexham*	1,695

* Accepted.

ST. ALBANS.—For making-up, &c., Beaconsfield-road, for the Corporation. Mr. G. Ford, City Surveyor, Victoria-street, St. Albans:—

James Dickson	£498 0	George Capper, St. Albans (accepted)	£438 10

SLAITHWAITE.—For warehouse and three shops in Britannia-road, Slaithwaite, for the Colne Vale Corn Millers, Limited. Mr. J. Berry, architect, 9, Queen-street, Huddersfield:—

Masonery.—John Ellis, Linfit Hall, Linthwaite
Joinery.—J. Varley & Son, Carr-lane, Slaithwaite
Plumbing.—Francis Goodall, Marsden
Plastering and Painting.—James Walker, 45, Carr-lane, Slaithwaite
Slating.—W. E. Jowitt, John William-street, Huddersfield
Ironfounding.—Calvert & Co., Folly Hall
Concreting.—John Cooke, Little Royd, Huddersfield
} £2,809

STEEPLE CLAYDON (Bucks.).—For the erection of school buildings, &c., for the School Board. Messrs. Geo. Bennett & Sons, surveyors, Buckingham:—

Orchard & Son	£2,139 0 0	Geo. Tombs & Sons	£1,734 16 9
Woodfield	1,915 6 10	W. J. Siary	1,690 0 0
L. Grist	1,838 0 0	Wm. Tompkins	1,465 0 0
T. J. Burbury	1,810 0 0	J. R. Tibbetts, Buckingham*	1,450 0 0
Jno. Garrett	1,795 0 0		

* Accepted.

STRANRAER (N.B.).—Accepted for additions, &c., to the Academy, for the School Board. Mr. J. C. Macfarlane, architect, Stranraer. Quantities by the architect:—

Masonry.—David Purdie, Stranraer	£725 0 0
Joinery.—Jas. McLauchlin, Stranraer	815 0 0
Slating.—John Forsyth, Stranraer	113 0 0
Plastering.—Hugh Thursby, Stranraer	189 19 0
Plumbing and Gasfitting.—Rob. Sharp, Edinburgh	93 3 2
Ventilating.—Donald & Time, Glasgow	58 14 0
Heating.—Donald & Time, Glasgow	154 14 8
	£2,149 10 10

SWANSEA.—Accepted at a schedule of prices for the construction of sewers, Eaton Town, Brynhyfryd (contract No. 19), for the Town Council:—

Gustavus Bros., Swansea (accepted).

THIRSK (Yorks.).—Accepted for the erection of house and other buildings for Mr. John Ellis. Mr. Thos. Stokes, architect, Thirsk. Quantities by the architect:—

Bricklaying, Masonry, and Plastering.—W. Jackson, Thirsk
Joinery.—R. Lee, Thirsk
Plumbing and Glazing.—R. Pickersgill, Stockton-on-Tees
Slating.—Baynes & Rawe, Ripon
Painting.—C. Long, Thirsk
} £625

WELLINGBOROUGH.—For the erection of chimney-shaft water-pumping station, Bushfield, for the Urban District Council:—

H. Dorman	£133 10	E. Brown & Son	£127 0
Wm. Berrill	132 13	R. Marriott (accepted)	123 0

[All of Wellingborough.]

WIMBLEDON.—For the execution of sewerage works for the Urban District Council. Mr. C. H. Cooper, C.E., Engineer, the Broadway, Wimbledon:—

E. C. Iles	£1,172 0 0	Mayo & Co.	£983 0 0
S. Kavanagh	1,133 8 2	Wm. Cunliffe, Kingston-on-Thames*	978 4 0
Geo. Bell	1,004 0 0		
Thomas Adams	1,669 0 0		

* Accepted.

WORCESTER.—For new class-rooms, Royal Grammar School, Worcester. Mr. A. Hill Parker, architect, Worcester:—

Escourt & Son	£3,138	T. Vale	£2,697
H. Stokes	2 955	J. Wood & Sons	2,687
Bromage & Evans	2,947	Collins & Godfrey, Tewkesbury (accepted)	2,630
J. Kendrick	2,899		

TO CORRESPONDENTS.

G. P.—C. G. L.—N. & Son.—A. B. P.—T. A. B. (amount should have been stated).—A. C. T.—R. R. (below our limit).—W. F. L. & Co.—E. S. & Son—W. P. (too late next week.)

We are compelled to decline pointing out books and giving addresses.

NOTE.—**The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.**

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisemen's and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

ESTABLISHED 1866.

J. J. ETRIDGE, Jr.

SLATE MERCHANT,

SLATER and TILER.

ESTIMATES GIVEN FOR

SLATING AND TILING,

To be Executed by Contract in any part of ENGLAND.

Penrhyn - Bangor,

Oakeley - Palmerston,

And other description of Slates ready for immediate delivery to any Railway Station.

Applications for Prices, &c., to

BETHNAL GREEN SLATE WORKS,

BETHNAL GREEN, LONDON, E.

SUBSCRIBERS in LONDON and the SUBURBS, by prepaying at the Publishing Office, 19s. per annum (or 4s. 9d. per quarter), can ensure receiving "The Builder," by *Friday Morning's Post.*

TERMS OF SUBSCRIPTION.

"THE BUILDER" is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 19s. per annum PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 26s. per annum. Remittances (payable to DOUGLAS FOURDRINIER) should be addressed to the publisher of "THE BUILDER," No. 46, Catherine-street W.C.

THE BATH STONE FIRMS, Ltd.

BATH,

FOR ALL THE PROVED KINDS OF

BATH STONE.

FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

HAM HILL STONE.

The attention of Architects is specially invited to the durability and beautiful COLOUR of this material. Quarries well opened. Quick despatch guaranteed. Stonework delivered and fixed complete. Samples and estimates free. Address, The Ham Hill Stone Co., Norton, Stoke-under-Ham, Somerset. London Agent: Mr. E. A. Williams, 16, Craven-st., Strand, W.C. [ADVT.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co. [ADVT.

SPRAGUE & CO.'S

INK-PHOTO PROCESS,

4 & 5, East Harding-street,

Fetter-Lane, E.C. [Advt.

QUANTITIES, &c., LITHOGRAPHED accurately and with despatch.

METCHIM & SON, 20, Parliament-st. S.W.

"QUANTITY SURVEYORS" TABLES AND DIARY, For 1895, price 6d. post 7d. In leather 1/- Post 1/1 [ADVT.

THE

French Asphalte

COMPANY,

Suffolk House, Cannon-street, E.C.

SUPPLY THE BEST MATERIAL AND WORKMANSHIP FOR BUILDINGS, DAMP COURSES, AREAS, ROOFS, WASHHOUSE AND DAIRY FLOORS, &c., &c.

This Asphalte was chosen to be laid at Sandringham, on the new General Post Office, and other important buildings.

TWELVE GOLD AND SILVER MEDALS AWARDED.

ZINC AND COPPER ROOFING.

F. BRABY & CO.

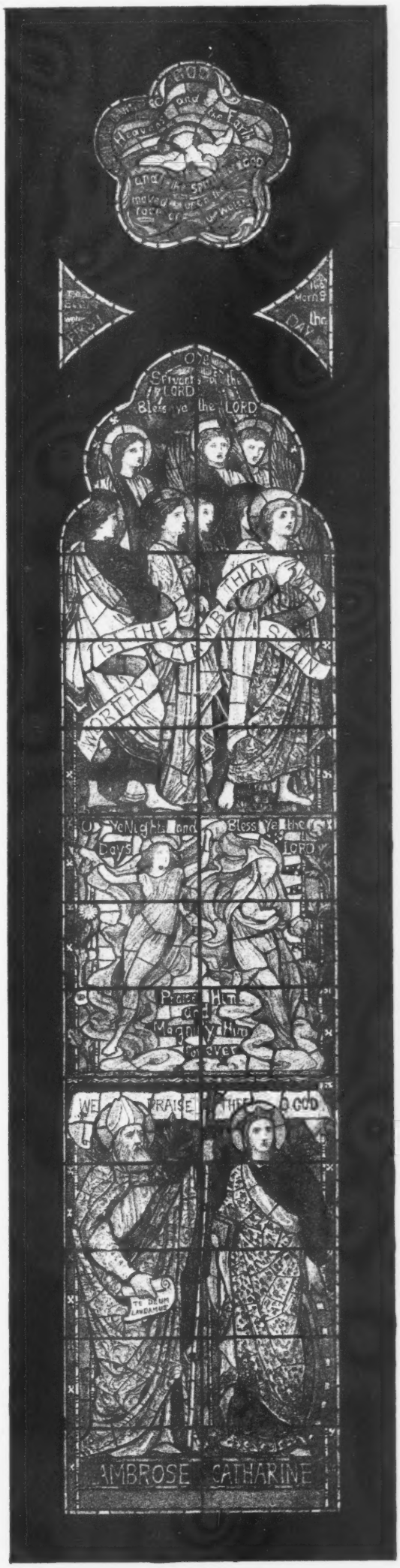
LONDON. ◆◆ LIVERPOOL. ◆◆ GLASGOW.

352 to 364, Euston-road, N.W. 6 and 8, Hatton Garden. 47 and 49, St. Enoch-square.

VIEILLE MONTAGNE SOLE MANUFACTURING AGENTS.

NO SOLDER. NO EXTERNAL FASTENINGS.

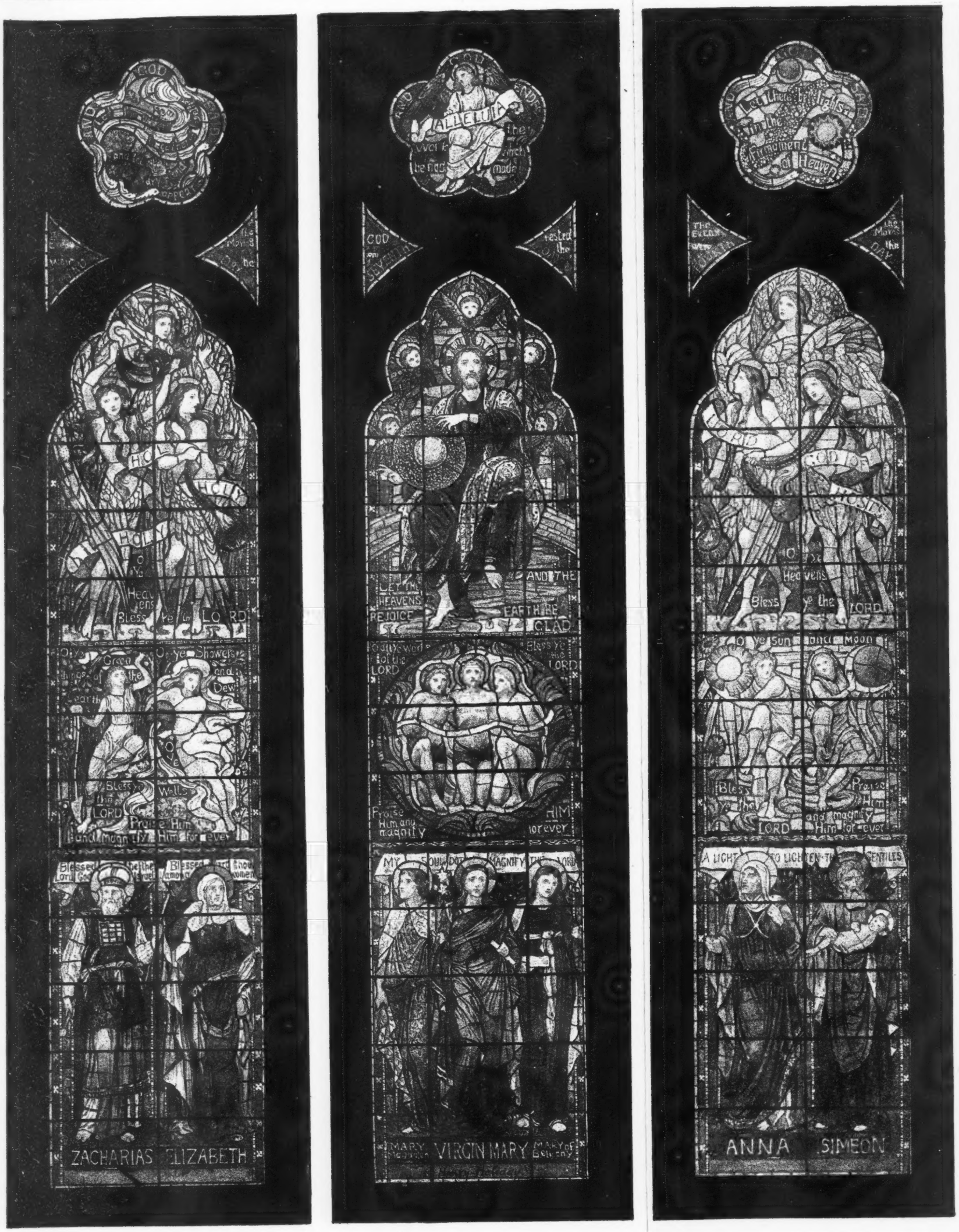
Particulars on Application. Chief Offices: Fitzroy Works, EUSTON ROAD, LONDON, N.W.


GOD
Heaven
and the Earth
and the Spirit
of the LORD
Morn
the DAY
O ye Servants of the LORD
Bless ye the LORD
IS THE LAMB THAT WAS SLAIN
O ye Nights and Days
Bless ye the LORD
Praise Him
and Magnify Him
for ever
WE PRAISE THEE O GOD
TE DEUM LAUDAMUS
AMBROSE
CATHARINE

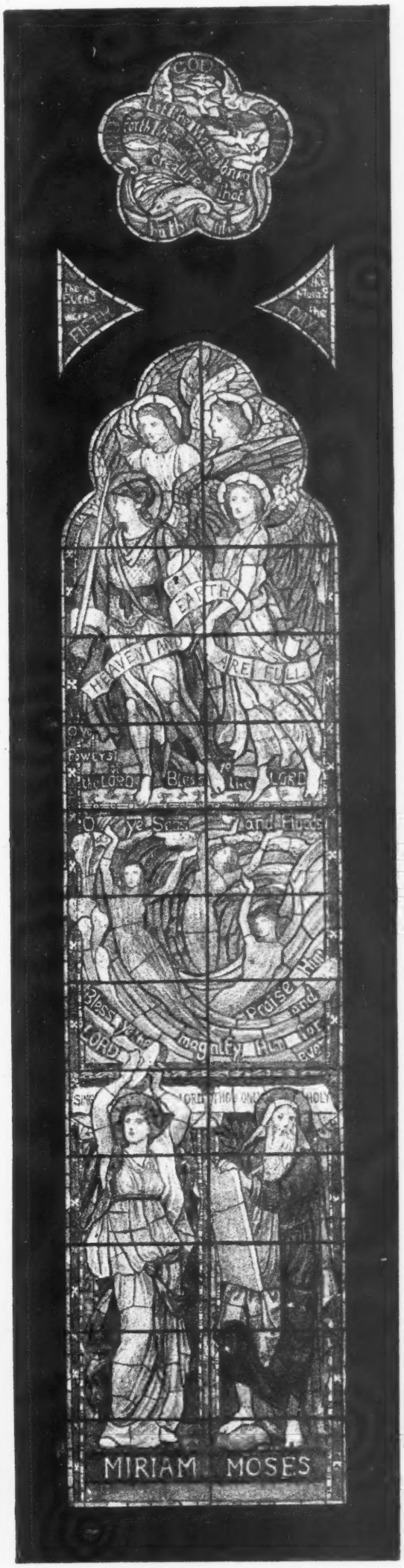
GOD
Let there be a firmament
and let it divide the waters
Evening
Morning
the DAY
O ye Spirits and Souls of Righteous
Bless ye the LORD
BLESSING
HONOR
POWER
TO RECEIVE
GLORY
Hands
LET US SING UNTO THE LORD
GREGORY
CECILIA

GOD
HOLY
Heaven
Bless ye the
LORD
Praise Him
and Magnify Him for
ZACHARIAS
ELIZ

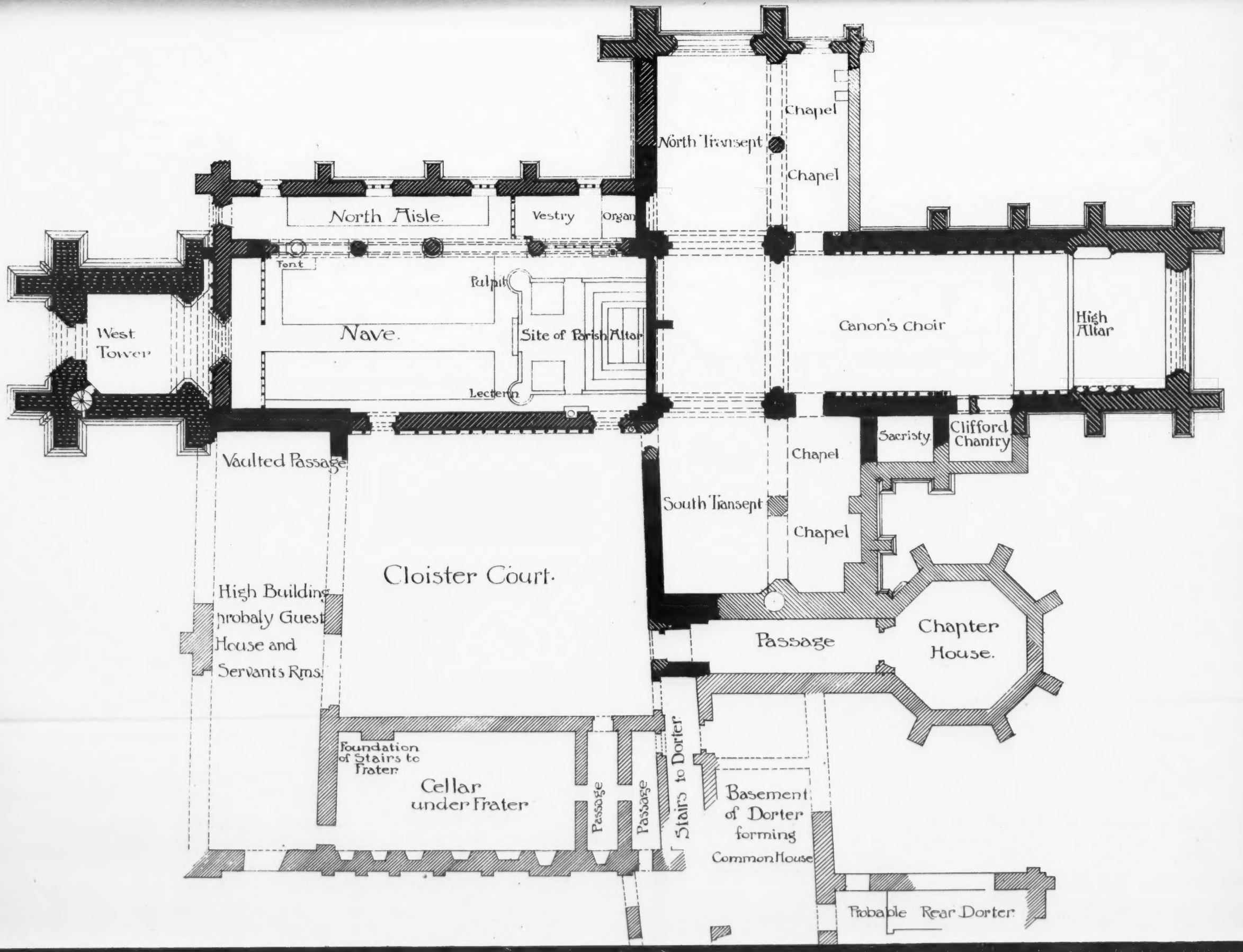
DES



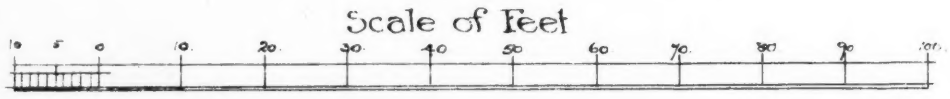
DESIGN FOR THE APSE WINDOWS OF GRACECHURCH, UTICA.—By Mr. Henry Holiday.



INK-PHOTO. SPRAGUE & Co 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.


North Transept
Chapel
Chapel
North Aisle.
Vestry
Organ
Font
Pulpit
West Tower
Nave.
Site of Parish Altar
Canon's Choir
High Altar
Lectern
Vaulted Passage
Sacristy
Clifford Chantry
Chapel
South Transept
Chapel
Cloister Court.
High Building probaly Guest House and Servants Rms.
Chapter House.
Passage
Foundation of Stairs to Frater
Cellar under Frater
Passage
Passage
Stairs to Dorter
Basement of Dorter forming Common House
Probable Rear Dorter

Bolton Abbey Yorkshire
Ground Plan.



Key to Dates

Trans. Norman.

Early English.

Decorated.

Perpendicular.

Foundations.

Fittings of Nave by the late G.E. Street.

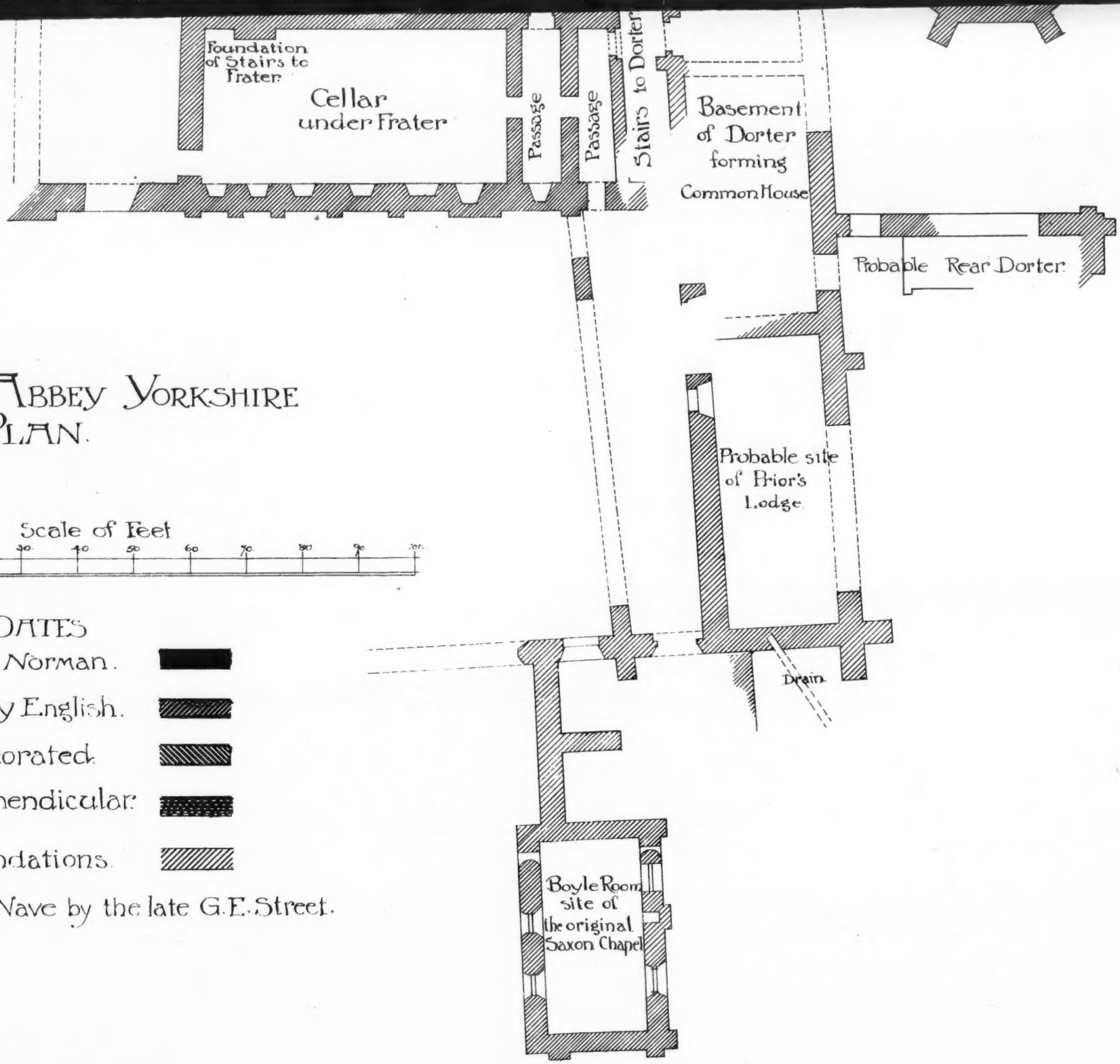


PHOTO-LITHO. SPRAGUE & Co 4 & 5 EAST HARDING STREET FETTER LANE. E.C.

THE ABBEYS OF GREAT BRITAIN.—No. 12. BOLTON: FROM THE

DRAWN BY MR. J. A. SLATER.

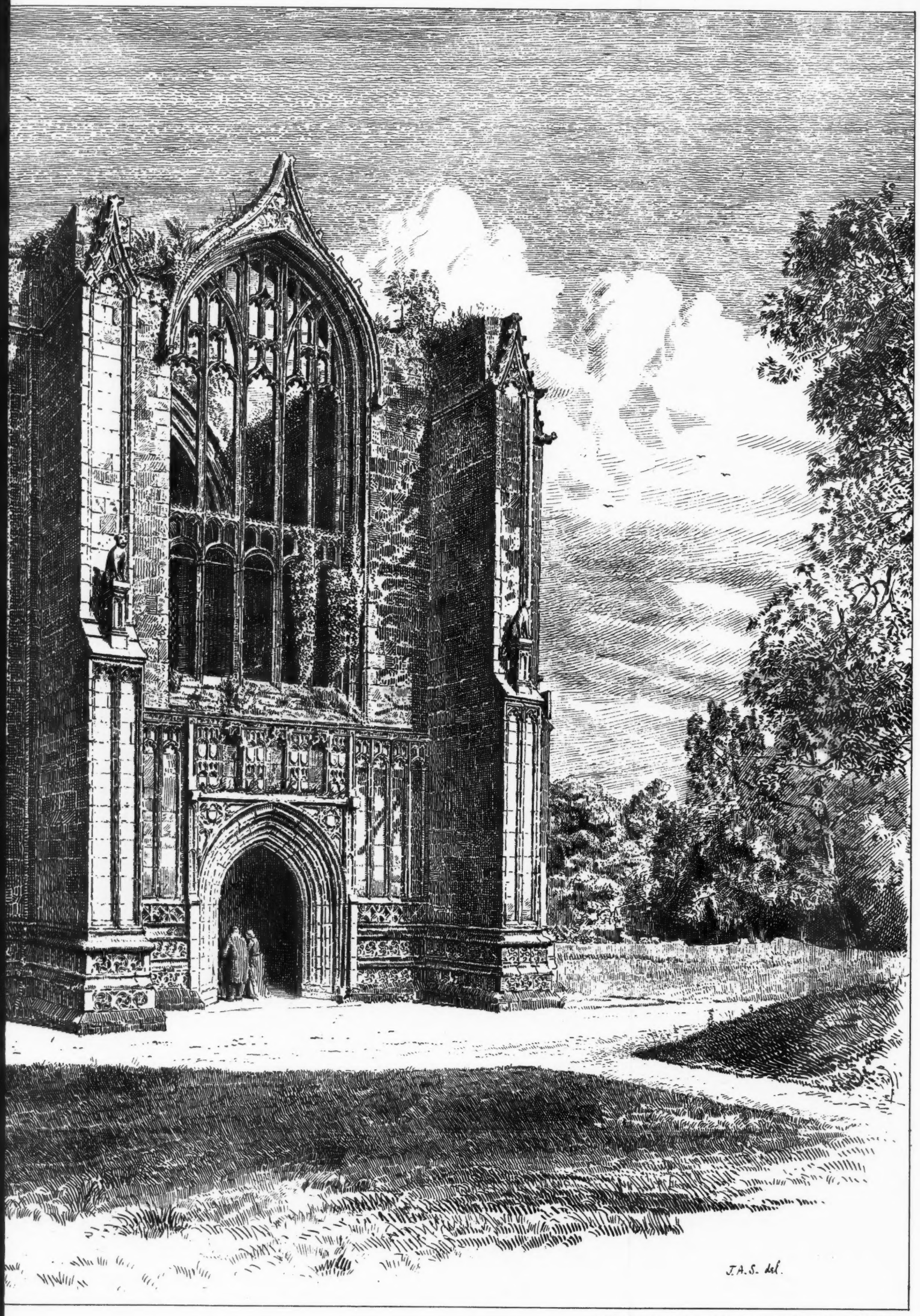
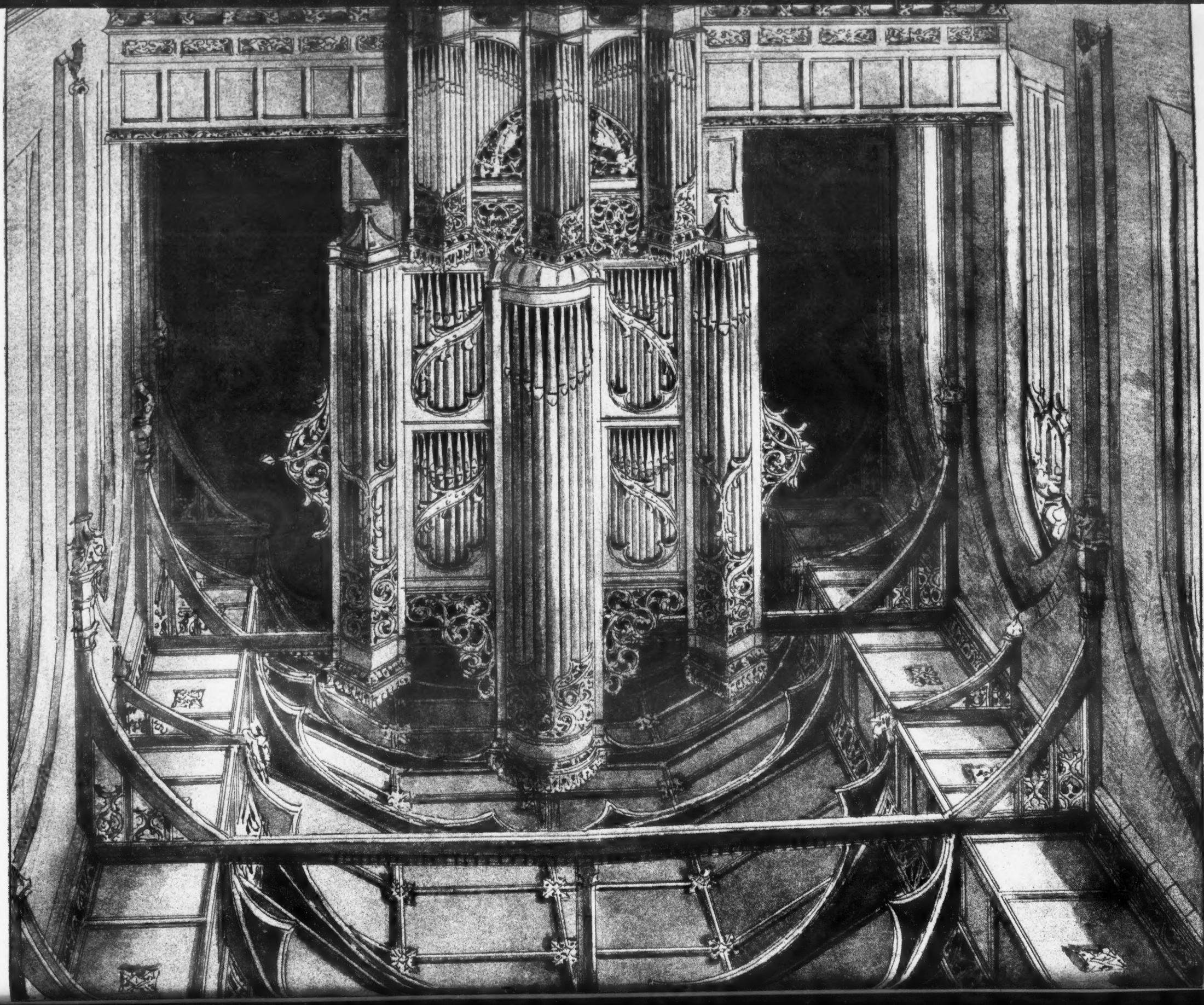
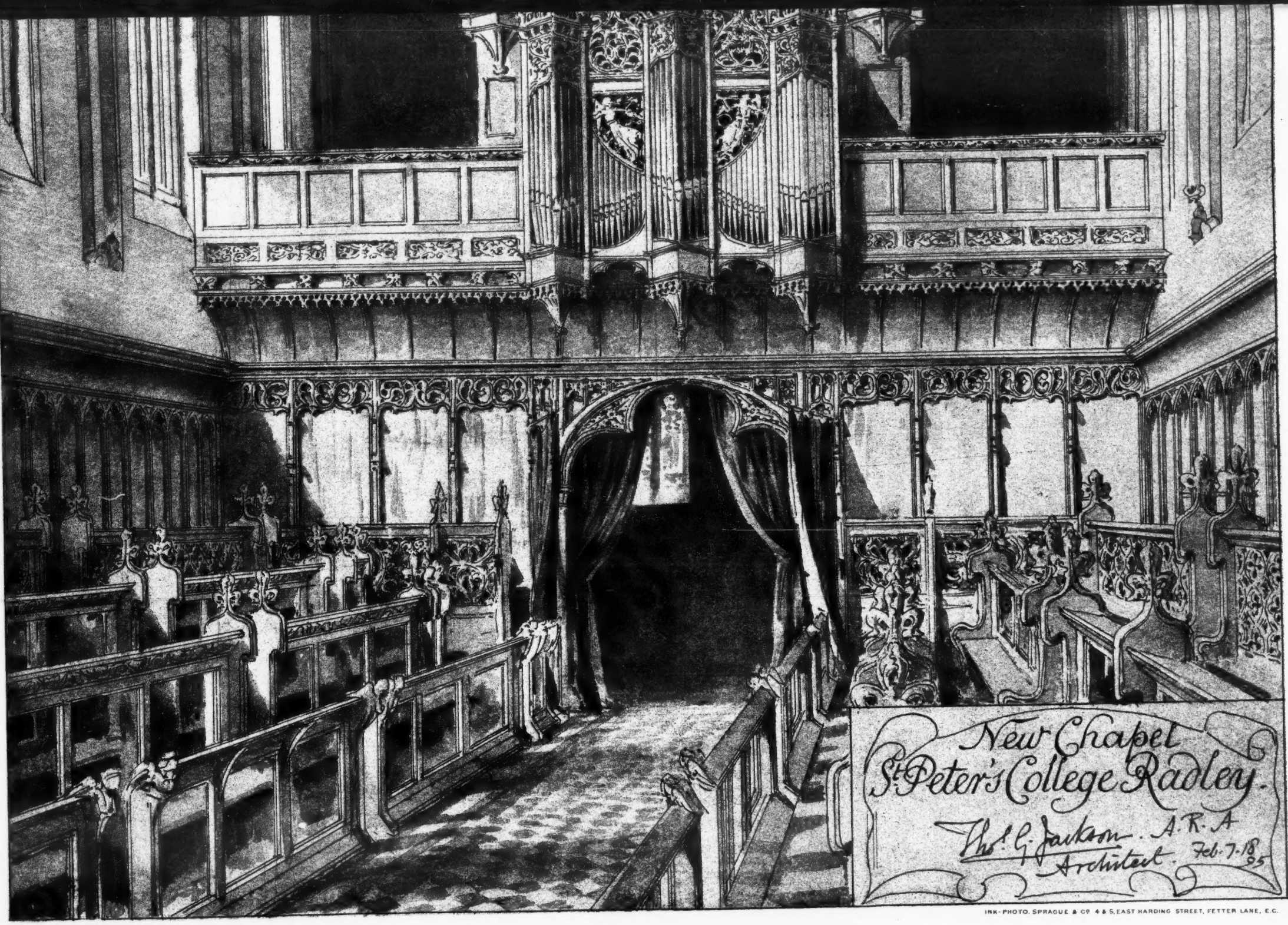


PHOTO-LITHO. SPRAGUE & Co 4 & 5 EAST HARDING STREET FETTER LANE. E.C.

—No. 12. BOLTON: FROM THE NORTH-WEST.

BY MR. J. A. SLATER.





New Chapel
St Peter's College Radley.
Thos G. Jackson. A.R.A
Architect. Feb. 7. 1895

INK-PHOTO. SPRAGUE & Co 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.